SOUTHERN TEXTILE BULLETIN

VOL. III | CHARLOTTE, N. C., MAY 9, 1912 | NUMBER 10

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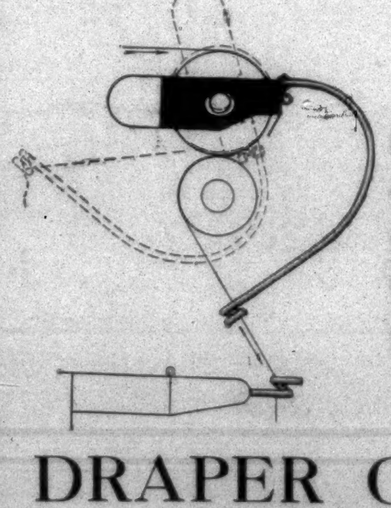

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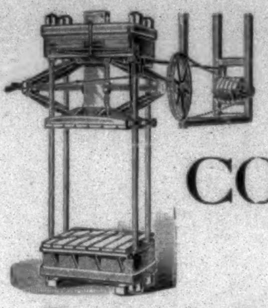

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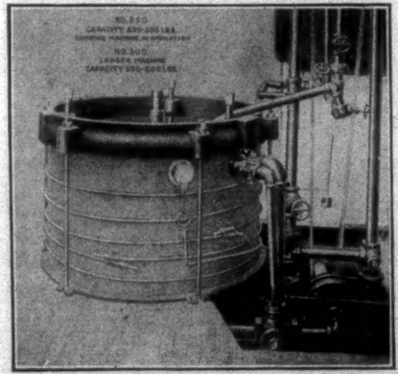

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SOUTHERN
TEXTILE BULLETIN

VOL. 3 CHARLOTTE, N. C., MAY 9, 1912 NUMBER 10

Steam Plant Efficiency in Textile Mills

Raymond L. Foster before National Cotton Manufacturers Association

DURING the business hours and days of the year you represent the management, and I the engineers of textile mills. I am going to ask you to forget this for the time being, and for the benefit of the stockholders and our own reputation seek means to obtain the best efficiency in the steam plant.

The four main points upon which efficiency depends are, harmony, first cost, installation, and operation. The first, harmony, is vital. No great enterprise will succeed without it. The word "harmony," as I will use it, means, "the meeting on the level" of the three men responsible for the efficiency of the plant, manufacturer, consulting engineer, and engineer in charge. Together they will succeed. When one holds aloof from the others there is faliure. One can tie the others' hands.

Theory is the explanation of all movements, and will fit every case if all conditions are known, but with the manufacture and utilization of steam power many invisible conditions are assumed, which do not always exist.

The consulting engineer is not always to blame for the poor efficiency of the plant. His well planned designs are often made faulty by the manufacturer's "hobbies." Neither is he responsible for poor operation.

He is not to blame for the lack of efficiency, if the manufacturer has put in his hobbies, and the consulting engineer his unsuccessful experiments. Neither can he be expected to get the results from a well designed plant if the manufacturer ties his hands.

Severe competition among mill engineers, probably caused by manufacturers calling for lower cost per spindle, has in many cases been the cause of poor efficiency in the steam plant. Boilers, chimney, engine and the builders we must have.

The auxiliaries that are necessary for economy, and to utilize our by-products, we should have, but don't always get. In some plants we get them and they are too small or of an inferior grade. Forty-five dollars per horse power has been set by many mill engineers as a fair price for a modern, econmical power power plant in textile mills, using from 1,500 to 2,000 horse power. It can be built for $42.

We are now at the most critical stage of our subect what to install and how to install it. There have been many city hospitals built where physicians can experiment, but as yet the only hospital our mill engineers have had is the practical plant at the expense of the stockholders and patience of the management. Many a good slice of the dividend has been spent in ripping out and building over after the plant has started.

Let us start and build a modern steam plant of 2,000 horse power and avoid these changes. Begin right by placing our engineer, who is to have charge of the plant when finished, on the ground at the start. He makes the best inspector, as it will be up to him to run it and get results later. We must bear these points in mind, for they mean the success of the plant:

First, get all the possible B. T. U. from the coal into the steam.

Second, put the pressure or heat units in the steam at the boiler into the engine.

Third, avoid all unnecessary by-products possible.

Second, put the pressure of heat units in the steam at the boiler into the engine.

Fourth, this plant complete must not cost over $84,000.

In selecting the type of boilers we must have one that will stand a safe working pressure of 200 pounds per square inch, the weakest part not exposed to the fire; one that will not have the least loss by radiation, one that will have no brick work to keep in repair, and a boiler that will take the least floor space, also one that will give us dry and superheated steam. We want a boiler so designed that by good circulation and proper ratio of grate surface to water heating surface, not less than 1-50 or 1 to 50, we may evaporate 30 pounds of water with 10 square feet of heating surface under normal conditions and natural draft.

We will install the vertical fire tube type of boiler, being, we believe, the best adapted for our particular plant. Why Because there are no other boilers that can so well fill all these requirements.

The next step is, how many boilers do we need? Shall we put in a spare one? No man will put his money in a national bank and not use it; neither will we put our money in a spare boiler to lay idle. A modern cross compound engine of 2,000 horse power will run on 12.5 pounds of water. One-half a pound added for auxiliaries equals 26,000 pounds per hour to be evaporated. We agree that three pounds of water per square foot of heating surface is most efficient, and with this allotment of work to heating surface it is possible to get 33 1-3 per cent overload continuously with mechanical draft. Let us see how this works out, 26,000 divided by 3 equals 8,66.66 square feet heating surface required for the whole plant. Let us divide this into four units and see what we get: 8,666.66 divided by 4 equals 2,166.66. The normal capacity for each unit is 2,266.66 which multiplied by three equals 6,499.98 pounds evaporation per hour. Sixty-five hundred multiplied by 1.33 1-3 per cent equals 8,667 pounds evaporation per hour at 33 1-3 per cent overload. Now if it becomes necessary to cut out of our boilers at any time we can evaporate 8,667 multiplied by 3 equals 26,001 pounds of water per hour, the required capacity. Therefore, by installing four boilers we get the best efficiency and save the price of valves, piping, etc.

Saaking grates, automatic water controllers and soot cleaners are three trimmings necessary for good results. The grate in a vertical boiler sets below the fire door therefore the old slice bar and flat grate are impossible for good firing. Automatic water controllers give steady feed, and if we want clean boilers Saturday morning as well as Monday, we must install soot cleaners.

Gases leaving our boilers running normal should be about 475 degrees. This, one of our largest by-products, we cannot afford to lose, although many do. If in the mill you were making ten per cent waste, would you be willing to throw it away? No, you watch very closely to see that every pound is saved and sold. Let us put in an economizer and save a large per cent of these heat units. It must be remembered that this apparatus is constantly under greater pressure than the boilers, and it pays to invest in the best. In principle they are all alike, but in design of details and durability there is a vast difference.

With draft we get the capacity of our boilers. It is as important in obtaining our rating of the boiler as the grate or heating surface. The time is not far distant when this item will not be ommitted in quoting the horse power of a boiler. A current of air passing up through the grates and fuel supplies the necessary oxygen for combustion. The hot gases follow up through the tubes through the economizer and up the chimney. This natural process, controlled by the law of gravity is the theory of our chimney. The greater the difference in temperature between the gases in the chimney and the outside atmosphere, and the greater the height, the more pressure we get in the ash pit. The stronger current gives us more oxygen, therefore a higher rate of combustion, and increases evaporation. Theoretically a chimney 100 feet high will give us 6 inches at the base, with gases inside at 450 degrees and atmosphere 60 degrees. In our plant we would need one 160 feet high and six feet in diameter at a cost of about $5,000.

An induced draft system with a 75 foot steel stack, would cost with a relay engine about $2,000 and give us control of our oxygen, rate of combustion, and amount of evaporation per square foot of heating surface; or in other words, double the capacity of our boilers if necessary.

This draft is preferable to forced draft, as it gives you power where wanted, at the foot of the stack. Forced draft pushed beyond a exhaust pipe we should get our feed water in the primary heater to 108 degrees. Feed water leaving

(Continued on Page 7)

Submission of Tariff Board Report

Lettter of Submittal.

The Tariff Board,
Treasury Building,
Washington, March 22, 1912

The President:

Pursuant to your instructions, that as soon as possible after completing our report on Schedule K, of the tariff law, we should report on Schedule I, cotton manufactures, we have the honor to submit the following:

The report consists of two parts.

Part I. Analysis and glossary of Schedule I of the present tariff law, together with a statistical survey of the cotton industry in leading coutnries.

PART II. Relative costs of production, prices, and wages, with special reference to the existing rates of duty,

Part I.—Glossary.

In Part I the existing tariff act as it relates to cotton and manufactures of cotton is analyzed by paragraphs. Not only the paragraphs of Schedule I, but the paragraphs of Schedules J and K, under which certain cotton goods are dutiable, are discussed. Under each paragraph are given the definitions of the articles dutiable under it, a discussion of the tariff rates in the present act and their method of operation, together with the statistics of imports, exports, and production of the various kinds of cotton goods.

The definitions of the articles include not only those articles specially mentioned in the tariff act but those placed by Treasury decisions under a given paragraph. In the case of cloths, several hundred of the common cotton fabrics are defined and the nature of their stricture indicated.

There is included such description of processes of manufacturing as is necessary for the understanding of the act. For example, under cloths, where the classification depends largely upon the finish of the fabrics unbleached, bleached, colored, mercerized, etc.), a statement of the various finishing operations is presented.

In the discussion of rates the more complex features of the paragraphs are reduced to tables and the operations and effect of the rates within the various classifications indicated. The important Treasury and court decisions are also discussed. In the appendices are included (a) two large comparative tables giving the rates on cotton and cotton goods under every act from 1789 to 1909; (b) the text of foreign tariffs relating to cotton manufactures; and (c) a comparison of rates of duty in Germany, France and the United States.

The statistics given under each paragraph include a statement in detail of the imports for 1911 with the computed ad valorem rates under each classification. Imports and exports by countries and the production of cotton goods for the United States are presented, and the imports into the United States are compared with domestic production. There are also tables showing the world's commerce in the various articles of cotton manufacture.

Statistics relating to the cotton and knit goods industries in the United States as a whole are discussed, and there is a section on the distribution and extent of cotton manufacturing in the principal foreign countries.

Part II.—Costs and Prices.

Part II includes a detailed study of costs of manufacture and prices of yarn and cloth.

The number of mills investigated in the United States was 81; the number of spindles covered, 5,210,836; and of looms, 133,761. The mills ranged in size from one having 5,184 spindles to one having 602,312 spindles and from one having 5,184 spindles to one having 602,312 spindles and from one having 54 looms to one having over 20,000 looms. Besides these, 17 mills in the hosiery and underwear industries were examined.

The actual book figures were secured in all mills on the total output for a period ranging from 3 to 15 months, together with the amount and character of each variety of yarns and fabrics produced.

From these figures the actual costs at each mill of yarns and fabrics were worked out in detail by methods fully explained in the report. Detailed costs of this kind are presented for nearly 200 different yarn organizations, 80 different kinds of threads, and over 1,200 different cloth constructions. A selection was made of 100 samples of fabrics of common use in the jobbing and retail trade, and on these full data are given, not only as to costs of manufacture but as to mill prices, jobbers' prices, retail prices, both here and abroad and the relation of costs and prices to the duties levied on each particular sample. A set of these samples accompanies the report for the use of Congress.

The foreign investigation extended to England, France, Germany, Canada and Japan. England is by far the greatest producer of cotton goods among foreign nations and the greatest competitor of this country. That country sends us over three-fourths of the cotton fabrics imported and nearly seven-eighths of the yarns and threads. In view of this fact, and because of the time limit set for the investigation, and the necessity of carrying on other investigations at the same time, most of the foreign comparisons are based upon English conditions.

In the case of hosiery, Germany sends us nearly 98 per cent of all the hosiery imported, and a comparison of relative costs and prices of men's and women's hosiery in this country and Germany.

It was not possible, with the time and resources at our disposal, to investigate the costs of manufacture of each of the many special articles included under this schedule, and the board confined itself to yarns, threads and textile fabrics an such specialties as tapestries, pile or plush fabrics, table damask, bedspreads, hosiery and underwear.

Findings of the Investigation.

The method of determining costs adopted by the board does not include the item ~~of~~ interest, so that the cost figures as given show nothing regarding the original investment necessary to carry on the process of manufacture except the item of depreciation. This item is slight as far as cost per yard of cloth is concerned. Obviously, however, the relative advantage or disadvantage of the foreign and domestic manufacturer in competition is affected by the amount of original capital on which interest must be earned. Consequently figures are presented showing the relative costs of completing and equipping a spinning plant and a weaving plant in England and this country designed to carry on the same line of production. From these figures it appears that the cost of erecting a building is about 40 per cent greater in this country than in England, the cost of equipment for a spinning mill about 70 per cent higher, and the cost of equipment for a weaving plant, (with plain looms in both countries), about 50 per cent higher. These figures are for the equipment considered adequate for a given production in the two countries. It varies somewhat according to different methods prevailing in the two countries, and the figures do not necessarily establish the relative prices of identical machines here and abroad. Where a mill is equipped with automatic looms the cost of the looms is at least two and a half times the cost for a mill equipped with plain looms.

A very small part of the cotton machinery used in this country is imported, a marked contrast to the case of worsted machinery. With the exception of spinning mules more than 90 per cent of the machinery is of domestic manufacture. Practically all looms and all ring spindles are of domestic make Of cards and jack spindles about 15 per cent are of foreign make. Mule spinning in this country involves only about 20 per cent of the total number of spindles, and of the mules in use in the mills investigated 83 per cent were imported.

Cost of Yarns.

In comparing the cost of making yarns in England and the United States it has seemed essential in view of the fact that 80 per cent of English spindles are on mules and 80 per cent of American spindles on ring frames, to compare the cost of mule spinning in England with the cost of ring spinning in this country. As a rule mule spinning is a more expensive process, and the production from mule spinning is somewhat finer quality, even with yarns of the same nominal count. These facts should be kept in mind; but it is evident that the really significant comparison is that between the actual results obtained under the prevailing methods of each country.

In the cost of raw material there is practically no advantage possessed by either country. Any general difference in the price between England and the United States is less than occurs from mill to mill or month to month in either country.

The actual book figures for English mills and American mills show that in comparing the most efficient mill for which we have figures in England with the most efficient mill for which we have figures in this country—and these mills are typical in both cases—the per cent of the total English labor cost to the total American labor cost per pound of yarn varies from 78 to 95 per cent. Comparing all of the yarns selected, the English labor cost is found on the average to be practically seven-eights of the American in the case of these two mills.

In the matter of general expense the difference between the two countries is decidedly greater, thereby increasing the difference in the total conversion cost of yarn. Again, by comparing the two most efficient mills, as referred to above, it is found that the total conversion cost of yarn in England varied from 65 to 79 per cent of the American conversion cost. The average on all acounts taken shows the English conversion cost to be about 73 per cent of the American.

It should be noted that these comparisons are based upon taking that mill in each country which showed in general the low cost on the whole range of yarns. On certain particular counts a lower cost was shown in other mills, so that the figures may be taken as typical for mills of higher efficiency. They cover warp and filling yarns not higher than 50s for warp and 70s for filling.

Taking all of the mills covered by the investigation in each country, there were wider variations in the American costs secured than in the English costs, due partly to the fact that the English mills were all in the Lancashire district, where wages and other conditions are well standardized, while the American costs were taken from mills covering a much wider area, with much greater differences in labor and other conditions. Another reason for the wider variations in American costs is that the English mills for which figures were secured are all of a modern and efficient type, while some of the American mills included were old and of low efficiency.

In the case of most yarns for which figures are given for the United States the highest conversion cost is 50 per cent higher than the lowest conversion cost. In a

(Continued on Page 18)

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The Stafford Exhibit.

The Stafford Company's exhibit at Boston last week was one of the most extensive in the Hall, occupying the entire southwestern side They showed eleven looms, ten "Ideal" automatic and one silk,—weaving a wide range of goods, including fine voile, cotton warp and silk filling, fancy silk, lawns, bags broad sheeting, worsted, denims, terry towels, jacquard patterns and heavy duck.

As the vistor approached the Stafford Company's space the first loom he saw was a standard Stafford Silk Loom, equipped with a twenty harness dobby, making a very beautiful piece of printed taffeta, 36 inches wide, 6,000 ends in the warp and 100 picks to the inch. This loom has all its bright parts nickel plated, and presented an unusually fine appearance.

No. 2 was an automatic cotton loom with a 70s warp and 60s silk filling. Speed of loom 145 picks per minute. Construction of cloth 76x 76. The silk filling is wound on paper tubes by the Universal System. Loom is equipped with a feeler motion and makes practically perfect cloth.

No: 3. This was the new 1912 model and has embodied in it the very latest ideas in loom design and construction. It was making a standard sheeting 28s warp, 44s filling, 80x80, and was running at a speed of 165 picks per minute. In order to demonstrate the Stafford claim of adaptibility to all conditions this loom was running with both cop and bobbin filling alternately in the same magazine.

No. 4. Fine voile loom. Many able manufacturers have labored under the impression that automatic looms were not suited for goods of this variety. This loom gives a practical demonstration of the error of this view point. It was making a ery beautiful voile, 100-2 warp and 100-2 filling, 64x60, and turning out an irreproachable piece of goods.

No. 5. This was a special type of "Ideal" automatic loom for making baks. They were made complete on the loom, both sides and bottom being woven in. The construction of these goods was warp 22s and fillings 44s, 64x68.

No, 6. This snowed a new use for an automatic loom, the making of terry towels. The top warp was 20-2s and the bottom warp 30-2s; the latter was the ground warp This loom was run at 150 picks per minute. On account of the unusual nature of this weave the loom received a great deal of attention from practical mill men who had never seen such goods made on an automatic loom.

No. 7 was a broad sheeting loom making a piece of standard 90 inch sheeting, 20s warp, 28s filling, 68x 72. This loom was run at 103 picks per minute and was one of the finest appearing looms of all. In its construction it included the latest Stafford ideas in loom building, with improved form of take up motion, picking motion and let off.

No. 8. This was a duck loom for making up to 14 ounce ducks. The goods the loom was making were 12 ounce goods, 30 inches wide This loom weighed over 3,000 pounds and was running at a speed of 145 picks per minute. Loom is equipped with feeler motion and was designed and constructed from the ground up especially for making this class of goods. It is a strong rigid machine and makes an unsurpassable grade of goods.

No. 9. This was a 63 inch worsted loom of the automatic type and is a fair example of the wide range of these looms. It made a piece of worsted dress goods on 4 harnesses of a quality that no plain loom could excel. The loom is equipped with a feeler motion and was running at a speed of 130 picks per minute.

No. 10. This loom made a three harness blue denim for overall goods. It is equipped with a feeler motion and was running at a speed of 168 icks per minute. It was running on bobbin filling but like all "Ideal" looms can run equally as readily with cop filling. The splendid cover of these goods was especially noted.

No. 11. This was a jacquard loom making a figured fabric with a plain warp and red filling. It was also equipped with a feeler motion and attracted especial attention on account of the unusual nature of the goods. The diversity of product that these looms are capable of handling could not be better exemplified than by this loom.

Mill Figures in South Carolina.

Comptroller General A. W. Jones of South Carolina, gave out the figures giving the assessments of the cotton mills, cotton oil mills and fertilizer plants as determined by the state board of equilization at its meeting Thursday. The same basis for assessment was adopted by the board as last year, the actual value being determined and 50 per cent of the actual value assessed for taxation.

The total increase in the taxable property amounts to $1,245,866, this increase being in the cotton mills and fertilizer plants on account of new cotton mills and an increase of business according to the fertilizer returns.

The following are comparative figures:

Cotton Mills—1911, $27,812,804; 1912 $28,496,297; increase, $683,493.

The Effect of a Strong Plea.

A man in North Carolina, who was saved from conviction for horse-stealing by the powerful plea of his lawyer, after his acquittal by the jury was asked by his lawyer.

"Honor bright, Bill, you did you steal that horse, didn't you?

"Now, look a-here, judge," was the reply. "I allers did think I stole that hoss, but since I hearn your speech to that'er jury, I'll be doggoned if I ain't got my doubts about it."

Improved Shuttle

THIS invention by Morrill E. Deering, of Pittsfield, Me., relates to shuttles and has special reference to new and improved means for locking the spindle in the shuttle, and for adapting the spindle to be readily secured in the shuttle or detached therefrom.

Referring to the accompanying drawings:—Figure 1 is a plan view of a portion of a shuttle showing the spindle detachably secured therein, in accordance with this invention. Fig. 2 is a view in longitudinal section on the line 2—2, Fig. 1. Fig. 3 is a view partly in section and broken away of the shuttle shown in Fig. 1 with the spindle in position to be secured in place or removed from the shuttle. Fig. 4 is an enlarged detail view of a portion of the means for securing the spindle in the shuttle.

1 indicates a shuttle of the usual construction formed with an opening 2 in its bottom adjacent to its forward end and with a vertical projection 3 at the rear end of said opening, said projection extending up into the shuttle.

4 indicates a spindle having its head 5 formed with an annular groove 6.

Mounted on a pivot pin 7 which has its bearing in the sides of the shuttle and extends transversely across the same above the opening 2 is a member 8 consisting of a metallic body portion with a longitudinal hole 9 and with the curved portion 10 at its bottom in the rear of the pivot 7 and with the vertical face 11 in advance of the pivotal portion of the member 8, said face 11 being provided adjacent to its top with a transverse semicircular groove 12, the member 8 being formed with a horizontal portion 13 projecting from the lower end of the vertical face 11 and with the projecting end 14 to which is secured by a pin 15 the forward end of an elastic metallic plate 16 separated from the end 14 by means of a washer 17. The inner end of the and with a depending oval projection 30 spaced from the oval projection 29. When the parts are assembled together as shown in Fig 2 the head 20 of the rod 10 engages the cross pin 24 and the depending oval projection 30. The member 8 engages the oval projection 29 and the flange 18 of the spring metal strip 16 is located in the annular groove 6 of the head 5 of the spindle.

It will be seen that by means of this construction the spindle will be held securely in place in the shuttle and can rotate on the head 20 and the rod 19. When it is desired to release the spindle from plate 16 is formed with a vertical flange 18. A rod 19 is detachably mounted in and projects into the spindle 4 and is formed with a tapering head 20 which projects through the hole 9 in the member 8, the head 20 having adjacent to its outer end a cutaway portion 21 in its upper side, and beyond said cutaway portion is transverse semicircular groove 22. The head 20 is provided with a transverse notch 23 on its underside which engages the transverse pin 24 mounted in the sides of the shuttle 1 and extending beneath the curved portion 10. Located in a recess 25 in the forward end of the shuttle is a coil spring 26 which bears against one end of said recess and has projecting into its other end a shank 27 of a block 28 which is formed at its forward end with an oval projection 29 extending transversely across the same the shuttle by lifting it up as shown in Fig. 3 the member 8 pressing forward on the member 28

(Continued on Page 18)

Fig. 1.

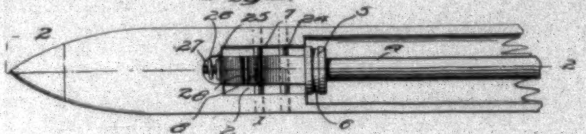


Fig. 2.

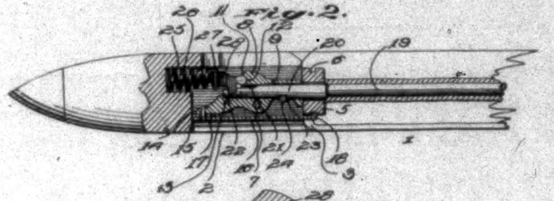


Fig. 4.

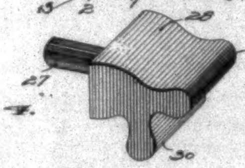
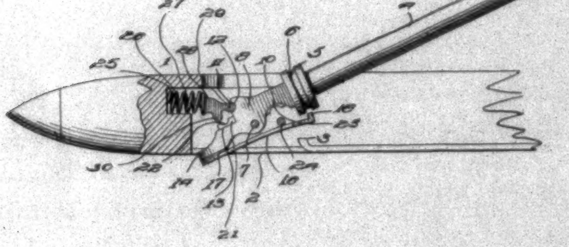


Fig. 3.



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Starch, Dextrine, etc.

Steam Plant Efficiency in Textile Mills.

Continued from Page 3

certain limit chokes up. An induced draft cannot do this.

Remembering that we are not to make any unnecessary by-product, we will install a six-plunger power pump, and not a steam pump, for our day feed to the boilers. However, we will provide a steam pump, but for emergency and night feed only. In installing feed piping, the mistake often comes with too small pipe at the boilers. On this plant all feed pipe will be 4-inch brass, with 2-inch branches to each boiler. There are two points to be gained with ample size feed pipes. One is to project the pump and economizer from excess pressure and the other is to have controller valves large enough to supply with small lifts.

Let us carry our steam now from the boilers to the engine. In erecting our sixty feet of main steam pipe, running through the center of the boiler room, we must guard against two evils, vibration and loss of pressure. One is caused by the sharp cut-off of the high speed Corliss valve, and the other by friction, radiation and lack of supply.

Vertical boilers working under 192 pounds pressure per square inch, with 18-foot tubes, giving 52 to 70 degrees superheat, connected to a 12-inch main steam pipe by 7-inch long bends, and a receiver over the throttle 3 1-2 times the volume of the high pressure cylinder, will give us dry steam at the throttle with a loss of about one pound pressure.

We will put in a 24x54x60-inch cross compound Corliss engine, running at 85 revolutions or 850 feet piston speed, with a boiler pressure of 190 pounds and receiver pressure of 18 pounds (gauge pressures), a 26-inch vacuum in the low pressure cylinder and a low terminal pressure of 9.75 pounds absolute, we will obtain 2,000 horse power with a steam consumption of 12.4 pounds per indicated horse power.

You will note I placed the vacuum at 26 inches in the cylinder, not at the pump or exhaust pipe. This is a figure seldom reached with reciprocating engines. The success of the turbine is its high vacuum realized by placing the condenser close to the exhaust nozzle. Looking at some steam plants, one might imagine the engine was installed and condenser placed wherever there was room, regardless of turns or distance.

The exhaust of our engine, like the waste gases, is a necessary by-product that can be partially reclaimed with an exhaust heater. This heater must not have less than half a square foot of heating surface per boiler horse power and the steam must go round the tubes, not through them. Care must be taken not to congest the area of exhaust Some will ask why put in an exhaust or primary heater when the exhaust of the condenser will heat the feed water to 150 degrees or in some cases 200 degrees, before ooing to the economizer. That is too true in a great many cases and where you find it you may be sure the condenser is consuming too much steam. I can cite you a mill where 22:400 pounds of water is going through the heater per hour This water is raised from 124 degrees to 200 degrees, or 76 degrees by the exhaust of a condenser hooked up to a 700 horse power cross compound engine. How much steam is this condenser using? Twenty-two thousand four hundred multiplied by 76 equals 702,400 heat units One pound of steam at atmosphere contains 1,146 heat units; 1,702,400 divided by 960, or all that we can realize equals 1,773 pounds steam per hour used by the condenser. The engine itself should not use over 9,000 pounds, 1,773 pounds of steam for the condenser is 20 per cent of the steam used by the engine. Rather a poor investment, still this mill feels proud to know they can raise their feed water to 200 degrees without an economizer.

Too little thought has been given to the steam consumption of a condenser. In purchasing a condenser the builder must guarantee two things, steam consumption and vacuum in inches under normal conditione. The best twin vertical air pump and condenser for our plant would use about 1,800 pounds of steam per hour. Our condenser must not use over 800 pounds per hour, and the only type that does this is one driven by a Corliss engine.

With a 27 1-2-inch vacuum in the auxiliary heater at 142 degrees and through the economizer to the boilers at 230 degrees.

There is practically no waste in heating a mill with the hot water system, using a turbine circulating pump and live steam coils returning condensation to the boilers. This system should heat a textile mill in any part of Massachusetts for 50 cents per horsepower per year The old style hot water system used a high speed reciprocating engine for circulating. This engine suffered more or less from lack of attention. The turbine is practically fool-proof.

It is of importance that we make provision for the storage of our cal. The difference between the price of coal in the car or vessel and the price in the fire-room is an item to be considered and runs up rapidly in the winter.

The old style of buying coal by its name is practically dead and should not be thought of by intelligent men, as we all know that poor seams can be found in all coal districts. Different methods have been advised for the purchase of coal one of which is the B. T. U. basis This is a beautiful theory, but a practical failure. Heat units should regulate the value or price, but in making a contract there are other elements in coal and conditions of the individual plant to be considered.

We have completed, for $84,000, what we believe to be a first class modern plant for a textile mill, capable of producing the most economical results. It now remains for the operating engineer to bring them out.

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Collins Tape Drive Twister
Saves 50 Per Cent Power
Over the band drive machine. It positively improves quality and increases production. Cotton manufacturers should investigate. Full particulars upon request. We have been building Twisters 50 years and we know how,—let us save you money.
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Draw Frames

Contributed Exclusively to Southern Textile Bulletin by W. P. Hurt

Drawing frames are the least complicated machines in the card room. On account of their simplicity they are often overlooked, and the spinner and weaver have bad running work as a result. Some mills try to run without a sufficient number of deliveries to take care of the products of the cards and to overcome this deficiency, the carder must run the rolls faster and slivers heavier, both of which are detrimental to good work. A well organized mill should have one card for each delivery and not more than seven cards to six deliveries. With the cards and deliveries equal, the draft should be about six. This will not necessitate ovedrafting in the frames after leaving drawing.

When the rollers are not set to suit the staple, they will produce a very uneven and flaky sliver from nicely carded cotton For short staple cotton 1-16 and under, the second roll should be set as close to the front as possible. Third to second roll 1-8 inch wider than second to front. Back roll 1-4 inch wider than third to second. We set the back to third roll wider than the other rolls because sliver is heavier. This is called the break draft and should not exceed 1.50 The draft between the front and calendar roll should be only sufficient to keep the sliver from swagging. The compensating intermediate gears should be changed if necessary to induce the draft at this point. We think the leather covered top roll preferable when the sliver does not exceed 45 grains per yard. For any sliver heavier than 45 grains the metallic roll is preferable. Unless the leather covered top rolls are very heavily weighed, they will slip on the heavy sliver and if heavily weighed will ruin the leather covers. The metallic roll can be set close as possible on heavy sliver and there is no slipping or uneven work. But it is quite different with leather top rolls

Some things that cause bad work are weight hooks weaving and becoming unscrewed and resting on lifting bars. One end of roll clogged, or wrapped with cotton. One weight screwed up tight at one end of roll and loose at the other Trumpets with holes too large or small for the sliver. Back and front stop motions not sufficiently sensitive. Clearers should be cleaned every three hours and frames cleaned not less than four times daily.

Drafts.

The draft of a draw frame should be counted from the back roll to the calendar roll inclusive. Omit all intermediate gears. If the draft from the front to back roll is wanted, the front roll gear should be counted. But if the draft includes the calendar roll omit the front roll gears as it acts as an intermediate Suppose we have a draw frame geared as follows:

Driven Gears.

Gear on back roll, 60 teeth.
Crown gear, 100 teeth.
Compound change calender roll, 32 teeth.
Bottom calender roll, 2 inches.

Driving Gears.

Compound gear, 45 T.
Gear and calender roll, 24 T.
Back roll, 1 3-8 inches.

We first reduce the diameter of the rolls in inches to eighths.

$$\frac{60\times100\times32\times16}{45\times24\times11}=258.67$$

To obtain draft gear divide constant by desired draft.

$$\frac{258.67}{600}=43 \text{ draft gear}$$

$$\frac{258.67}{43}=601 \text{ Draft.}$$

Again if we desire to obtain draft instead of constant number use the draft change gears in the problem with the drivers.

$$\frac{60\times100\times32\times16}{45\times24\times11\times43}\ 601 \text{ Draft.}$$

To prove the draft multiply the number of ends put up at back by weight in grains and divide by the weight of one yard in front. Suppose any sliver from cards may weigh 60 grains and we double 6 and the finish drawing weighs 60 grains then we have

$$\frac{60\times6}{60}=6 \text{ Draft.}$$

Many carders prefer to change draft gear on sluggers intermediates or fly frames when the product becomes heavy or light. If a change is necessary make it in the front drawing. If the sliver is allowed to run heavy or light until it passes through the frames, it will be affected by the tension in proportion to the amount it varies and will cause the frame to run mean. The frame should have all the rolls taken out and cleaned every week, the flukes well cleaned and the bearings oiled. If the flukes are not regularly cleaned they will become filled with refuse and cut the cotton. Where leather covered top rolls are used, it is necessary to varnish the leathers every week while the frames are being cleaned. The help must not be allowed to make singling or doubling. If they are not cautioned occasionally they will throw the sliver in just before the end gets into the back roll or let it pass entirely through

Small cans are a nuisance on sliver heavier on 25 or 30 grains per yard. They require more piecing which means bad work and more labor which means more cost. If we are making 60 grain per yard sliver at drawing while weighing we find the average weight had dropped to 58.5, now what gear shall we use to bring the yarn up to the standard?

Having a 43 draft gear and a 60 grain sliver we get 60 divided by 43 equals 1.4 approximately. Thus we see that each tooth equals practically one and four-tenths grains Then 1.4 multiplied by 58.5 is 59.9 giving us a 44 draft gear.

We are keeping our sliver as near as possible to 60 grains and find the yarn sizing light in spinning.

Suppose we are making No. 30 yarn and the sizing shows the average to be 30.77. The nearest weight to 30 is 33.4 equals 29.94 yarn. The nearest weight to 30.77 is 32.8 equals 30.77. We see there is .9 grain difference between the two yarns we want and what we are making. The sizing of the yarn represents 120 yards with 33.4 grains weight. The sizing at drawing one yard represents 60 grains for one yard. Thus we get 43 draft gear on drawing 33.4 grains in 120 yards.

$$\frac{33.4}{43}=.77.$$

By this we see that one tooth in draft gear in front drawing will equal to .77x30.77 which is 30 yarn One tooth larger will give the gear to bring the number right. But if the cotton is properly graded and the mixing of staple good there will be very little variation.

Notes on Double Carding Waste.

A machinery manufacturer who recently put on the market a new waste system gave us the following notes which apply to his system which is a double carding, no drawing frame process.

Picker laps may be run single or double tandem on breaker card.

Sliver from breaker card should be about 65 grs. per yard.

Sliver laps running double tandem, 168 ends under feed roll.

Sliver laps running single, 84 ends under feed roll.

Sliver from finisher card divided on doffer into four equal parts.

Four coilers on front of finisher card, 8x30-inch cans.

Clear stripping waste and comber waste may be made into slivers of 16.66 grs. (or .50 hank) or up to 25 grs. per yard on the finisher card.

Slivers from finisher card are evener and smoother than could possibly be made on the drawing frame from waste.

The drawing frame should not be used on clear waste work.

Small slubber, say 8x4-inches takes the 8x30 inch cans directs from the finisher card.

Any grade of waste that will carry in the shape of sliver, from the can to the slubber rolls can be made into roving and spun on ring frame or mule.

Double carded sliver is evener and stronger, and will therefore carry better out of the cans back of the slubber than will the same grade of waste single carded and drawn.

W. H. BIGELOW
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DISCUSSIONS BY PRACTICAL MEN

Answer to Picker Man.

Editor:

I notice that "Picker Man" wants to know if 1,180 revolutions is too fast for a porcupine beater.

I assume that he refers to a Kirshner beater and will say that I do not think that 1,180 is too fast if it is properly set but a great many men only run this style beater 1,000 revolutions and some run them 900.

The trouble with most carding beaters is that they are set the same as a blade beater, whereas they should be set up to 116 or just about as close as they will run without striking. Try setting one up close and note the difference in the work. Jack.

Answer To Remedy Hunter.

Editor:

I am of the opinion that the trouble with Remedy Hunter's card flats is caused by the clothing on the cylinder being loose on the edge, or it may have been re-drawn and the shoulder of the tape was not made tight enough which causes a little high place, which keeps the ends of the flats slightly faced. Hooked clothing on the cylinder may be the trouble. If he will see that the ends of the flats are well away from the cylinder, say set to a No. 12 gauge, then burnish the flats well using the stripper if necessary to get them thoroughly clean, grind to a good point and then run the card a few days and watch results. I could explain things better to Remedy Hunter if I knew exactly the conditions of his cards.

C. M. B.

Textile Analysis.

In an address recently delivered to a gathering of manufacturers and students at the Lauder Technical Institute, Dunfermline, Professor Beaumont, of the Leeds University, laid stress upon the importance of textile analysis. He obsered that fabric anlysis is an important part of textile study, and that its practice affords a knowledge of schemes of weaving, coloring, designing, and manufacturing. Well-selected examples of loomwork prove, by dissection, educating studies, illustrating and teaching principles of fabric construction. We might go further and say that the careful and observant dissection of actual cloth samples affords an insight into the principles underlying cloth structure that is not to be acquired in any other way. We agree with Professor Beaumont's suggestion that a textile institute should possess a collection of woven specimens, accompanied by analyses, comprising data of construction, sectional drawings, and designs of the woven specimens exhibited, as such a collection would not only be of historic and educational interest, but would also result in a saving of time to future generations; for, besides being a comprehensive record of what has been done in the past, it would serve as a basis or starting point for new arrangements, thus avoiding traversing the same ground again. If the particular institute concerned was happy enough to get a collection comprised of only the very best examples of each particular type, there is no doubt that it would have the effect of stirring the ambition of the rising generation to do something still better.

Decorative textures have two distinct aspects—artistic merit and technical veracity, or the adaptability of the technique to impart symmetrical expression to the purely artistics. One might mar the other, or each might contribute to the excellence and fitness of the other. Technique demands a course of training distinct from the artistic, yet it is only when art and technique are suitably blended that the ideal in woven ornaments is attainable. Here again analysis is an unerring guide and suggester: it illustrates at once how certain woven effects may be produced. Textile analysis is also practiced to ascertain the technical principles affecting manufacture as distinct from design pure and simple. The constructor of modified and novel types of gauze, lappet and other special textures, learns by analysis how these structures were originated, the schemes of intersection of which they are composed, and the varities of threads combined for specific effects. It is much to the advantage of textile designers to possess a private collection of dissected specimens—the larger and more diversified the better—of the best examples in designs and weave elements of different schools of construction.—Textile Manufacturer of Manchester, England.

The Tape Drive.

The only difference in the frame equipped with tape drive as compadred with the ordinary frame is the substitution of a flat whorl on the spindle and the addition of tension pulleys for every four spindles. The latter are set on an iron bracket, located at the right or left of the cylinder, according as the frame is right or left, this bracket being set between and below the spindles and driving drum. The tension device consists of a pulley running in oilless bearings, the latter being free to move back and forth on a double rail, the rear end of the pulley carriage lapping over the end of the counterweight of lever form that is hinged at a point behind and below the end of the carriage. The bottom of the bracket carrying the pulley is of convex form and fits into a concave bearing allowing it to be moved in a lateral direction, so that the pulley can be run at any angle desired. The latter can be locked in any required position. The lever used for counterweighting the pulley, thus keeping the band at an even tension, has only a 1 1-4-pound pull, but this has been found ample. The pulley can be lifted off the rails when desired, and its angle can be so changed as to reverse the direction of the tape when it is desired to spin reverse twist.

The taping of a spinning frame is a much more exact job than is the banding of a frame, yet it requires no more skill, if as much. The tapes are all cut to the required length, and any slight difference in length that may be due to lack of care in sewing the ends is taken up by the tension device. The length of laps, however, is so marked that there is little liability of any unevenness in sewing. For sewing a special machine is used that is portable and just the height of the spindle rail. This machine has an automatic feed with reverse motion, the only attention that it requires being to start and stop it and feed the tape sideways for the four rows of sitches. One boy can tape a frame quite as quickly as it can be banded, and when the taping is completed it is a job that will last for more than a year. Some mills have run their tapes for eighteen months before retaping was necessary. The tapes are adjusted so that the lap runs off of the tension pulley and spindle whorles, and there is only a slight perceptible jump, as the lap passes over a spindle whorl even when the tapes are first started.

The average cotton manufacturer will freely admit the many disadvantages of the band drive, but it has been generally considered that the old style tape drive was too expensive to warrant consideration. It is therefore somewhat surprising to learn that the tape drive system costs complete on the average only about twenty-five cents per spindle more than the band drive, and that it has been demonstrated by actual experience that it will pay for itself in less than a year by the saving in the cost of bands alone. Even though the latter were not the case, and even though the first cost were considerably larger, the fact that it insures an absolutely even tension on the spindles, uniform spindle speed, uniform twist and freedom from slack twist, which would commend it to large numbers of manufacturers.—Factory Facts.

Striped Paint.

A paint manufacturer recently received the following letter:

"Gentlemen:

"Will you please send us some of your striped paint. We want just enough for one barber pole."

Superintendents and Overseers

Glen Raven Mill.

Burlington, N. C.

Jas. C. Reid	Superintendent
S. L. Green	Carder and Spinner
E. F. Rhoden	Weaver

Carolina Mill.

Burlington, N. C.

J. M. Fowler	Superintendent
J. W. B. Paylor	Carder and Spinner
N. W. Baker	Weaver

Aurora Cotton Mill.

Burlington, N. C.

Eugene Hcl	Superintendent
Jas. O. Ezell	Carder and Spinner
W. P. Hornbuckle	Weaver
Chas. Foster	Dyer
C. J. Loy	Master Mechanic

Glencoe Mill.

Burlington, N. C.

M. M Marshall	Superintendent
R. L. Durham	Weaver
Will Hall	Carder
J. F. Welch	Spinner
O. H. Phillips	Dyer
J. M. Faucette	Finisher

Washington Mill.

Fries, Va.

G. F. Roberts	Superintendent
J. W. Bolton	Carder
S. T. Petty	Spinner
G. C. Pruitt	Weaver
E. A. Robinson	Cloth Room
H. W. Shaw	Master Mechanic

Bamberg Cotton Mill.

Bamberg, S. C.

I. N. Dunn	Superintendent
C. L. Eubanks	Carder
J. A. Sanders	Spinner
J. W. Willis	Weaver
H. S. Berry	Cloth Room
Will Harris	Machinist
L. S. McAllister	Master Mechanic

Altamahaw Cotton Mills.

Altamahaw, N. C.

Joseph E. Gant	Superintendent
C. N. Somers	Assistant Supt.
G. R. Kindrick	Carder
W. H. Ware	Spinner
C. W. Horton	Weaver
J. H. Watson	Beamer
J. M. Cox	Dyer
W. S. McIntyre	Master Mechanic

SOUTHERN
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THURSDAY, MAY 9

Cotton Exports.

At the end of last week exports of American cotton totalled 9,957,830 against 6,895,635 a year ago and 5,324,061 two years ago.

As we are yet four months from the end of the cotton year, it is easy to realize that the predicted export of 10,000,000 bales will be exceeded.

The International Federation of Master Cotton Spinners' and Manuestimated the number of spinning spindles in the world as 139,312,000 as against 135,596,000 in 1911 and facturers Associations on March 1st 133,421,000 in 1910 but they reported that a much larger per cent were in active operation this year than for any recent year.

An interesting feature of their report was the estimate that in spite of the large exports and large spinners takings the invisible supply or stock of cotton in the spinners' hands on March 1st, 1912, was practically the same as in 1911 and 1910.

Everything points to a record breaking consumption of cotton for this year.

Two Positions.

The attitude of the leaders of the cotton manufacturing industry towards the proposed revision of the cotton goods tariff has been a matter of much interest and now that both of the big Associations have met we have before us the position taken by each.

The American Cotton Manufacturers Association at their meeting at Washington, D. C., passed the following resolution:

"It now appearing from the preliminary synopsis of the report of the Tariff Board and from other investigations that in some instances duties on cotton goods are now excessive, owing to changed conditions in manufacturing.

"Resolved, That this Association records itself as favoring such reasonable revisions of the Cotton Schedule, based upon differences in cost of production and other conditions at home and abroad, as shall be consistent with the raising of revenue and the conservation of our home market."

At the meeting of the National Association of Cotton Manufacturers at Boston, Mass., the following was adopted:

"Whereas, The large imports of substantially all products which can be transported over seas are conclusive evidence that such products made abroad can be sold at a profit in the United States market paying present duties, and

"Whereas, This fact should convince the unprejudiced that present duties are not excessive, therefore, be it

"Resolved, That in behalf of the owners of the sources of production and of all producers in the United States, we urge such rates of tariff at our customs houses as shall prevent increased importation of competing foreign products."

These two resolutions are worthy of careful consideration because they represent the position of two sections of the country upon a question of vital importance to the cotton manufacturing industry.

With all due respect to our New England friends we consider their resolution to be unfortunately worded and that its sentiments will work to the injury of efforts to obtain a fair protection for cotton goods.

We believe in protection and hope that at the end of the present tariff agitation a reasonable protection will be left on textile products but we realize the spirit of the times is towards revision and such conditions must be faced .

The American Association has said to Congress that they realize that some revision is necessary and that all they ask for is legitimate protection based on scientific investigation.

The National Association comes forward with an old moss back bull-headed resolution that no revision is needed and that none should be made.

Thus we have in contrast the attitudes of the two big Associations and realizing full well that some revision will be made we believe that much better results could be made if only the position of the American Association could be presented. Congress has the power to change the tariff and is in control of men who represent the sentiment of the country which is in favor of downward revision.

Is it better to go before Congress with the statement that we only ask for what is fair or with an old time demand of "let us alone?"

We fear that the cause of protection has been injured by the resolution which was passed by the National Association of Cotton Manufacturers.

How the Silkworm Works.

Silkworms, bombyx mori (because it unties itself in producing threads, and no skin but air remains within), must be fed every three hours and very regularly. The caterpillar devours 60,000 times its own weight in 30 days. It undergoes five moultings; at eight days, next three days it will not feed; then feeds for five days voraciously, then comes three days moulting and so forth.

It casts every part of its covering, even the interior coat of the stomach, gullet and trachea—body, head, feet, eyes, jaws, even membranoc around its mouth. Mouth is vertical, not horizontal.

There are in a cocoon one and a half inches lang, about 2,000 feet of silk weighing in the neighborhood of three and one-half grains (a grain is one barley corn's weight) Five pounds of silk takes 10,000 cocoons. The small end of the cocoon is loosely laid and less gummed The insect when ready to escape, moistens this, pushes the threads aside and comes forth; some males will burst some in their eagerness but females leave their cocoons intact.

Cocoons will hatch in India in 12 days; France in 21; England, 35 to 40; Georgia, Florida and North and South Carolina, seldom more than 15; in Connecticut it takes from 18 to 20 days. The unwinding of the cocoons is done by uniting three or more at a time.

Some one will ask, "How about spiders?" Well, it has been calculated that it could be done, but that it would hardly pay, because to procure a pound of spider web would take 55,648. To herd all these and provide them with flies and mosquitoes would be a rather lively job, but it might be recommended as an antifat cure.

The writer of this, who served in Co. E, 54th New York Infantry, Veteran Volunteers, during the "Great Disagreement," helped to look out for the interest of our dear Uncle Sam, who saw fit to place him and the rest of the regiment on Folly Island, S. C. (Charleston harbor); after the evacuation, being stationed on James Island, there surveying and mapping. By going through the bushes I was annoyed by rather strong spider webs, the cocoons about hazelnut size, brownish in color. I found these only at Wappo Creek. Gathered a few and in camp, after soaking, could unwind them very readily. I never had the chance to see the spider.—Narrator

Scientific Training.

The value of scientific education as a factor in industrial training has been a much-debated topic. It is the general opinion that to achieve real success in any industry a knowledge of the scientific basas of that industry is absolutely indispensable. Occasionally, however this view is challenged, generally by those who hae succeeded by force of circumstances in obtaining a lucrative and responsible position notwithstanding their meager knowledge of the scientific side of their business; but in the main it is generally conceded that the man who is equipped with a knowledge

Continued on Page 16.

PERSONAL NEWS

J. T. Hull, of Kings Mountain, N C., is now located at Bessemer City N. C.

R. M. Gardner has resigned a: engineer and machinist at the Gastonia (N. C.) Mfg. Co.

C. H. Cromer has accepted position as overseer of weaving at the Alexander City (Ala.) Cotton Mills.

J. C. Authers has accepted position as engineer and machinist at the Gastonia, (N. C.) Mfg. Co.

A. M. Burt has accepted position with the Berlin Aniline Works, with headquarters in Charlotte, N. C.

E. J. Moore has resigned as overseer of weaving at the Gastonia (N C.) Mfg. Co.

C. L. Nelson has resigned his position as overseer of carding at the Green River Mfg. Co., Tuxedo, N. C

Virgil Nabors has accepted position at the Watts Mill, Laurens, S C.

G. H. Perry has resigned his position as roller coverer in the Gluck Mills, Anderson, S. C.

Thos. Shattles, from Lindale, Ga. is now second hand in weaving at the Abingdon Mills, Huntsville, Ala

W. P. Nelson has been promoted to fixer on slubbers at the Fulton Bag and Cotton Mills, Atlanta, Ga.

A. D. Steadman has resigned his position as superintendent of the Lockhart (S. C.) Cotton Mills.

W. R. Brown has resigned his position as superintendent of the Lydia Mill, Clinton, S. C.

A. M. Hunnicut has been promoted from second hand to overseer o weaving at the Gastonia (N. C.) Mfg Co.

V. J. Hix has resigned his position at the Liberty (S. C.) Mills and accepted position as master mechanic at the Maplecroft Mills, of the same place.

I. W. Wright, formerly of Liberty, S. C., has accepted position as superintendent of the Lydia Mill Clinton, S. C.

W. H. Burris has resigned as machine fixer at the Wiscassett Mills, Albemarle, N. C., and gone into the mercantile business.

E. L. Bost has been promoted from second hand to overseer of dyeing department at the Wiscasset Mills, Albemarle, N. C.

Frank Denney has resigned his position with the Ivey Mills, Hickory, N. C., and accepted position at the Alta Vista (Va.) Cotton Mills.

P. E. Huff has been promoted from assistant to overseer of roller covering at the Brandon Mills, Greenville, N. C.

F. C. Henderson has resigned his position as overseer of spinning spooling and twisting at the Columbus (Ga.) Mfg. Co.

W. T. McVaskee, of Rockingham N. C., has accepted position as overseer of carding with the Entwistle Mills, of that place.

H. G. Smith, formerly with the Abbeville (S. C.) Cotton Mills, has accepted position at the Mills Mfg Co., Greenville, S. C.

H. B. Scott, of Greensboro, N. C. has accepted position in the beaming room at the Locke Mills, Concord, N. C.

J. B. West has resigned his position as superintendent of the Premier Cotton Mill, Barton, Ark., and is now located at Batesville, Miss.

T. A. Davis has resigned as overseer dyeing in the raw stock and hosiery department at the Wiscaset Mills, Albemarle, N. C., and is now farming.

L. O. Bunton has resigned as overseer of cloth room at the Avon Mills, Gastonia, N. C., and accepted similar position at the Wylie Mills, Chester, S. C.

J. A. Rook from the Calvine Mill Charlotte, N. C., is now fixing looms at the Roanoke Rapids (N. C.) oCttor Mills.

James Setzer has resigned his position at High Shoals, N. C., and is now working with the Gastonia (N. C.) Garage.

C. W. James, of Union, S. C., has accepted position on loopers and sewing machines at the Wiscassett Mill, Albemarle, N. C.

C. F. Ledford has been promoted from loom fixer to second hand of weaving at the Gastonia (N. C.) Mfg. Co.

G. H. Lowder has resigned his position as overseer of night weaving at the Fidelity Mills, Charlotte, N C.

Wallace Long, of Philadelphia, Pa., has accepted position with the Union Bleaching and Finishing Works at Greenville, S. C.

T. I. Barber has been promoted from overseer of cloth room and assistant superintendent to superintendent of the Lockhart (S. C.) Cotton Mills.

K. C. McCollum has been promoted from second hand to overseer of cloth room and assistant superintendent at the Lockhart (S. C.) Cotton Mills.

W .H. Phillips has resigned his position as engineer and machinist at the Dillon (S. C.) Cotton Mills and opened a machine shop at that place.

E. F. Lipe has resigned his position with the Higland Park Mill No 3, Charlotte, N. C., and accepted position as machinist at the High Shoals (N. C.) Mfg. Co.

A. G. Travis, of Newton, N. C., is now second hand in dyeing department at the Fidelity Hosiery Mills, Newton, N. C.

E. D. Wolfe, of Fries, Va., has accepted position as overseer of weaving at the Arista Mills, Winston-Salem, N. C.

I. B. Covington, superintendent of the Albion and Mt. Holly (N. C.) Cotton Mills, has been nominated for mayor of Mt. Holly.

S. T. Buchanan, superintendent of the Piedmont (S. C.) Cotton Mills is one of the incorporators of the Hannon Brick Co., a new company at Pendletn, S. C.

F. A. Johnson has resigned his position as traveling representative for the Berlin Aniline Works, and accepted position as overseer of the dyeing at the Erwin Mills, Cooleemee, N. C.

Walter Stroup has resigned his position as section hand in the card room at High Shoals, N. C., to accept position as second hand in the card room at the Rhodhiss (N. C.) Mfg. Co.

W. T. Brown has resigned his position as overseer of the cloth room at the Abbeville (S. C.) Mills and accepted position as overseer of the weaving and cloth room at the Panola Mill, Greenwood, S. C.

J. B. Morris has resigned as second hand in weaving at the Wiscassett Mills, Albemarle, N. C., and accepted position as overseer of knitting at the Freeze Hosiery Mills, now in course of construction at Hendersonville, N. C.

OVERFLOW PERSONALS PAGE 16

CARDS, DRAWING,
COTTON MILL MACHINERY
SPINNING FRAMES,
MASON MACHINE WORKS
TAUNTON, MASS.
EDWIN HOWARD, Southern Agent
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The C. O. B. Machine
Cleans, Opens, Blooms all Grades of Cotton
NO BEATERS—nothing to injure the cotton—The simplest opening and cleaning machine on the market. Do away with your mixing bins.
Cotton cleaned by the Air Process—Opened and Bloomed ready for the Pickers.
CAPACITY 1000 POUNDS LINT PER HOUR.
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Send for Catalog. Write us, we will answer.
ATLANTA EQUIPMENT CO., Atlanta, Ga.

MILL NEWS ITEMS OF INTEREST

Jackson, Miss.—It is reported that here S. N. Thomas will establish a plant for the manufacture of knit underwear. Details have not as yet been announced.

Taylorsville, N. C.—E. W. Brawley, of Mooresvile, lhas purchased a large part of the stock of the Taylosville Cotton Mills Co. here. He is now a director in the company.

High Point, N. C. — The large weaving department of the Stehlie silk mills, on East Russell street, is now completed and the looms are being placed in position.

Greenville, S. C.—It is reported here that the Camperdown Mills will build an addition to their dye house. The dimensions of addition will be 30 by 40 feet, with brick walls, tar concrete floor and rubberoid roof.

Gastonia, N. C.—The fire department was called to the Trenton Mill about five o'clock last Wednesday afternoon to extinguish a blaze in the roof of one of the mill houses Only slight damage was done to the building.

Arlington, S. C.—There will be a special meeting of the stockholders of the Apalache Mills at the office of the company on May 14th to consider the advisability of liquidating the corporation and selling and collecting its assets.

Stubbs, N. C.—Articles of incorporation have been issued to the Buffalo Mfg. Co., of this place. The capital stock of the new company is given at $100,000 authorized and $30,000 subscribed by Charles Blanton and associates.

Knoxville, Tenn.—The Brookside Mills will build an addition and install 200 looms at a cost of $75,000 to $100,000. At present the equipment operated by this company consists of 52,000 ring spindles, 8,500 twister spindles, 585 broad looms 617 narrow looms, etc.

Rockingham, N. C.—The Ledbetter Mfg. Co. will build an addition to their present plant. This addition will be a two-story building 75x110 feet of brick. The contract has been awarded to A. D. Dumas aand J. W. Miller.

Anderson, S. C.—All of the old officers and directors of the Cox Manufacturing company were reelected at the annual meeting, held here Monday. The directors are:

J. R. Vandiver, E. P. Vandiver, N B. Sullivan, R. E. Ligon, J. A. Hall W. A. Watson and W. F. Cox, all of Anderson; John A. Horton of Belton and W. H. Wellington of Boston.

The officers are: R. E. Ligon president and treasurer; J. R. Vandiver, vice president, and C. C. Dargan, secretary.

Huntsville, Ala.—Four dwellings owned by the West Huntsville Cotton Mills and occupied by operatives of the company were burned last week. The loss is estimated at six thousand dollars, while the insurance amounts to about $2,500.

Kernersville, N. C.—The American Hosiery Mill, mentioned last week as planning to rebuild their plant which was recently destroyed by fire, have decided upon the erection of a 60 by 225 foot building, mill construction, costing $25,000 There will be installed 400 knitting machines, steam power plant, etc.

Randleman, N. C.—The Deep River Mill No. 1 is equipping their raw stock dye house with Crocker-Wheeler motors. They are also installing a motor, made by the General Electric Co., in the picker room. Power for runing these motors is supplied by the Randolph Power Co.

Greer, S. C.—There will be a special meeting of the stockholders of the Victor Mill at the office of the company on May 14th. This meeting will be for the purpose of considering the advisability of liquidating the corporation and of selling and collecting its assets.

Danville, Va.—The Dan River and Riverside Mills have secured a permit to build an addition in connection with the elargements which were recently mentioned as being planned. The structure will be four stories high, 50x75 feet, of fireproof construction.

Chapel Hill, N. C.—The Durham Hosiery Mills have awarded contract to T. C. Thompson & Bros., of Birmingham and Charlotte, for the erection of an additional 130 foot building. This addition, which was recently mentioned, will be erected at a cost of $17,000 and there will be installed a new engine and other machinery.

Evansville, Ind.—It is reported here that the sale of the Evansville Woolen Mills to the American Trust Company, trustees for the bondholders, has been confirmed by Judge Anderson, of the Federal Court. It is now stated that plans are on foot to form a company to operate the mills. It is expected that negotiations for the opening of the plant will be successful.

Columbus, Ga. — The quarterly meeting of the directors of the Columbus Manufacturing Company was held last week at which time the routine matters of the period were disposed of. Chas. H. Utley Wm. Wellington and Horace S. Sears, all of Boston, non-resident members of the board, were present along with the local directors. E. P Owsley was named a member of the board of directors.

Anniston, Ala.—Continuing the enlargement and improvement that have been in progress for some time past by the American Net and Twine Company at Blue Mountain City that company has awarded a contract to Houser and Company for the immediate construction of another warehouse of 3,000 bales capacity, and the work on it will be started as soon as possible.

Tucapau, S. C.—The stockholders of the Tucapau Mills met in the office of the president, Dr. J. F. Cleveland, on May 7th, and re-elected all the directors: Dr. J. F. Cleveland. J. B. Cleveland, Thomas E. Moore Alfred Moore and J. Z. Cleveland The officers were re-elected: J. F Cleveland, president, and T. E. Moore, treasurer and general manager.

The usual semi-annual dividend of five per cent was declared. It is payable July 1.

Union, S. C.—The Union-Buffalo Mills have secured plans and specivcations for the enlargement and additions to its power plant, recently mentioned as being planned. The plans were drawn by Chas. T Main, of Boston, Mass., and the improvements include a 51x68 foot addition to the present boiler house; constructing a 9 1-2 foot stack 200 feet high, installing six horizontal return tubular boilers, with two condensers and piping, etc. Contracts have been awarded for the boilers and condensers Contracts for the building and stack will probably be awarded during the next few days.

Bladenboro, N. C.—H. C. Bridger of the Bladenboro Cotton Mills, recently incorporated, with a capital of $300,000, has awarded all contracts for the plant. The main building will cost about $40,000 and will be of brick construction. The Howard & Bullough American Machine Co., Pawtucket, R. I., will furnish the textile equipment, to include 8,000 spindles and accompanying machinery for a daily output of 10,000 pounds of yarn and employing 150 operatives. The machinery will cost about $120,000, including a 450-horsepower steam plant.

Clifton, S. C.—At the meeting of the Clifton Manufacturing company the regular semi-annual dividend of three per cent was declared, and the old directors and officers re-elected.

At the meeting of the D. E. Converse company (Glendale mills) it was decided not to act on the dividend question at the present, but to wait until just before July 1, when the directors would be in better position to determine what dividend would be justified. The company omitted two dividend payments last year, but its business is understood to be better this year. The directors and officers were all re-elected

Anderson, S. C.—The stockholders of the Gluck Cotton Mills Monday afternoon in annual meeting, elected the following stockholders to serve for the coming year, all of them being re-elected:

W. H. Wellington, Boston; C. E Riley, Boston; E. Chappell, Atlanta Ga.; Edward Ehrich, Columbia; R E. Ligon, R. S. Ligon, J. L. Gray, N B. Sullivan and J. R. Vandiver, all of Anderson.

At a subsequent meeting the directors re-elected all of the old officers as follows: R. E. Ligon, president and treasurer; J. R. Vandiver, vice president, and G. B. Walton, secretary.

A special meeting of the directors will be held later on, when it will be decided what dividend will be paid.

Edgefield, S. C.—According to a notice published here, signed by Thomas F. Parker, president, and M. M. Trott, Jr., secretary, the stockholders of the Beaver Dam Mills have been called to meet in the office of the company on May 23 at 12 o'clock, to consider the advisability of liquidating the corporation and of selling and collecting its assets. Furthen than what is contained in the notice, nothing is known of the matter by the public here; but it is supposed that the reason for this action is the projected plan of consolidating the Beaver Dam Mills, the Capital City Mills and the Granby Cotton Mills of Columbia, S. C., with the Richland and Olympia Cotton Mills of Columbia the Pine Creek Mfg. Co. of Camden and the Fairfield Cotton Mills of Winnsboro, for which purpose a similar notice of liquidation was recently given, as noted, to the stockholders of the last four mills mentioned.

Honea Path, S. C.—The annual meeting of the stockholders of the Chiquola Manufacturing Co. was held in the office of the company on May 6th. The officers of the company consisting of Jas. D. Hammett president and treasurer; R. M. Shirley, vice president and F. H. Hudgens, secretary, were reelected. Also the old board of directors consisting of E. P. Smith, J. K. Branch, J E. Sirrine, W. H. Hammett, R. M Shirley, J. F. Shirley, T. H. Brock and Jas. D. Hammett were reelected.

The affairs of the company were found to be in a most satisfactory condition.

At the meeting of the board it was decided to call an extra meeting of the stockholders for the purpose of voting on the question of paying to stockholders a stock dividend of 100 per cent. The Chiquola Manufacturing Co. has been in operation an average of about seven years and the plant has proven to be a most successful one. The stock issued and outstanding represents only 47 1-2 per cent of the actual cost of the plant.

Textile Dyies Kill Fish.

At the coming sesion of the General Assembly of Georgia, legislation to prevent the various cotton mills located on the banks of the Chattahoochee River, from turning the dyes from their plants into that stream will be urged. The manufacturers will fight such measures on the ground that there is no other way to get rid of the refuse. It is contended by the State Fish Warden that thousands of dollars worth of fish are destroyed annually as the result of the dyes from the mills.

Insurance Case.

In the case of the Roberta Manufacturing Company, which was destroyed by fire more than a year ago, while holding insurance policies with Concord agencies and Charlotte agencies for $120,000 fire insurance, Judge C. C. Lyon ruled that the Charlotte agencies are liable for the total loss of $50,000 and that the policies held in the Concord concern are invalid.

The case has been long drawn out and of much interest. An appeal will be taken by the Roberta Company and by the Charlotte agency.

Roller and Ball Bearings.

At a recent meeting of the Institution of Civil Engineering a paper on roller and ball bearings was read by Prof. John Goodman, M. Inst C. E., embodying the results of inestigations he had been conducting for a number of years, to find the and speed at which such bearings may be allowed to run, and with a view to reduce the mass of information so obtained to definite law. Two instinct types of testing machines were used; one for roller and ball bearings running on a cylindrical journal, and the other for thrust and collar bearings.

Discussing the relative advantages and disadvantages of roller bearings, the author lays emphasis on the serious troubles that arise from the end-thrust on the rollers The reason for the existence of this is explained, and suggestions are made for minimizing its ill effects. The machines used for measuring the friction of bearings and the end thrust are described, and the results of tests tabulated. These show that the friction is much lower than that of ordinary bearings as commonly lubricated; the co-efficient of friction is also more constant than with a plain bearing, being practically independent of speed and temperature. The starting effort of a roller bearing is little, if any, greater than the running resistance, an important feature in machines which are constantly stopped and started, but no satisfactory expression has been found for the safe load under which a roller bearing may be run

In the author's opinion ball bearings possess many advantages over roller bearings; the friction is less, there is no end-thrust, and they occupy a much smaller lnegth of shaft than either plain or roller bearings.

Very early in the author's experimental investigation it was found that the speed of rotation of the shaft and the balls makes a great difference to the working load that may be imposed on a ball bearing This is not due to the centrifugal force acting on the balls, but is belieed to have some relation to the well-known effect of very rapid reversals of stress. Tests to determine the effect of running balls on flat and on grooved surfaces largely corroborated theoretical investigations.

The extreme importance of having all the balls in one race of exactly the same size, also of obtaining perfect truth and freedom from scratches in the ball races, is insisted upon, and expressions based on experimental data are given for the limiting working load of ball bearings of both the thrust and radial types.

The question of finding the load which will ultimately bring about failure in a ball bearing was one which appear to be perfect to the naked eye after running for several months may ultimately fail if allowed to run for years. It is obviously out of the question to test bearing for this length of time, and some other method for detecting impending failure was therefore needed. Several were tried, but without success, until the microscope was used for the examination of the balls. This method proved to be very valuable, and is believed to give entirely satisfactory results.

The author is of the opinion that modern ball bearings, as turned out by the best makers, are entirely satisfactory and reliable, and there is no reason to apprehend trouble with them. Reasonable care, of course, must be taken in mounting the bearings, and in ensuring that they are not allowed to run under higher loads than are given by the author's expression. Ball bearings are more expensive than plain bearings fitted with ordinary lubrication, but the friction is only about one-tenth, and the oil required is almost nil. When these qualiball bearing for almost every purpose is considered to be vastly superior to plain bearings.—Textile Recorder.

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(THE HUMIDIFIER WITH THE GUARANTEE)
TURBO TRADE MARK HUMIDIFIER

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Competition is a peculiar thing. It may make enemies out of lifelong friends—if it's a political contest.

The Turbo TURBO TRADE MARK HUMIDIFIER Humidifier
(The Humidifier with the Guarantee)

has met competition in but one way; the only way, in act. It has delivered the goods, and where it hasn't, and admit that there were things at first that we did not get on to, our education did not cost our customers a penny,

The great big business world is ruthless in its judgments of service rendered, and unless the service is rendered somebody loses.

Get Turbofied—and satisfied.

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B. S. COTTRELL, Manager

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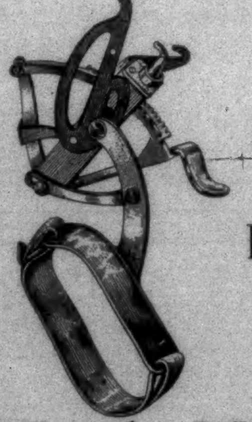

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THE ONLY PERFECT SYSTEM OF AIR MOISTENING
COMINS SECTIONAL HUMIDIFIER
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Cotton Goods Report

New York.—The change to more seasonable weather conditions has served to put new life in the jobbing trade, and better orders were received during the last days of the week. Requests from out of town retailers were received in several departments for prompt shipment of goods still on order, while in addition to this new business was als in evidence. Jobbers are becoming more confident now that retailers will regain much of their business they lost during April, and that before the close of the present month, the reorder demand will be of very fair volume. Requests were received during the week for further supplies of light weight underwear, hosiery, white goods and other lines suitable for early summer. The special prices made on certain lines of white goods, and the finer grades of wash cotton goods is serving to increase the demand in this quarter, and jobbing departments report a fairly steady call for lines of this sort. Reorders from the South are beginning to come forward in a steadier way, and it is expected that with a week or two of warm weather the demand from Southern retailers will show a decided improvement. The Western retail trade has not as yet had a chance to move in the way of spring and early summer merchandise, but retailers are not considered well covered, and should be in the market later on for additional supplies. With commission houses and selling agents demand is rather quiet at the present time, although manufacturers are reported to be busy getting out goods which are on order for delivery early this month. Some additional orders are being received from jobbers and cutters up who do not seem to feel that they are sufficiently covered for the early summer months. In the carpet and rug division of the trade preparations have been completed for the fall opening next Monday, and a few of the new lines are already on view. Nothing will be given out as to prices until next week, although there are quite a few buyers already in the market to attend the opening and some advance business is being booked, subject to the new prices, when announced.

Trading was very quiet in the Fall River print cloth market last week. Buyers showed only slight interest and most of their attention was directed towards obtaining concessions. Sales fell below those of the previous week which was the lowest week's sale, that has been noted since last December. Buyers seeking concessions were met by manufacturers insisting on full quoted prices. As a result moderate needs of many buyers were filled in the South where lower prices prevailed and only such goods were bought here that could not be obtained in style and deliveries elsewhere.

Sales for the week were estimated at 50,000 pieces, of which 35,000 pieces were spots. Goods sold ahead are largely to be delivered during this month and June. Only a few contracts run into the first of July.

Current prices on cotton goods were quoted in New York as follows:

Prt clths, 28-in, std	3 5-16	—
28-in, 64x60s	3 3-4	—
Gray goods, 39-in, 68 x72	5 3-4	—
38 1-2-in, std	5 3-16	—
4-yard, 80x80	6 7-8	to 7
Shtgs, south., std	7 3-4	to 8
3-yard	7	—
4-yd, 56x60	6 1-2	—
Denims, 9-oz.	13	to 16 1-2
Stark, 9-oz. duck	12 1-4	—
Hartford, 11-oz., 40-in. duck	14 1-2	—
Tickings, 8-oz.	13	—
Std fancy prints	5 1-4	—
Std ginghams	6 1-4	—
Fine dress ging.	7	to 9 1-4
Kid fin. cambrics	4 1-4	to 4 1-2

Weekly Visible Supply of American Cotton.

May 3, 1912	3,773,997
Previous week	3,945,824
Last year	2,336,779

Weekly Cotton Statistics.

New York, May 3.—The following statistics on the movement of cotton for the week ending Friday May 3, were compiled by the New York cotton exxchange:

WEEKLY MOVEMENT.

	This Yr.	Last Yr
Port receipts	79,811	71,972
Overland to mills and Canada	19,964	7,886
So. mill takings, (estimated)	35,000	25,000
Loss of stock at interior towns	28,278	44,020
Brought into sight for the week	105,997	60,838

TOTAL CROP MOVEMENT.

	This Yr.	Last Yr.
Port recipts	11,410,957	8,257,154
Overland to mills and Canada	03,901	893,233
So. mill takings, (estimated)	2,350,000	1,960,000
Stock at interior towns in excess of Sept. 1	168,524	236,557
Brought into sight thus far for season	14,833,382	11,345,994

Nine thousand nine hundred and ninety bales deducted from receipts for the season.

A couple of North Side neighbors were leaning over the back fence exchanging gossip as ladies will.

"My husband," remarked one, "says he always does better work when he is thinking of me."

"I notice," responded the other, "that he made a very good job of beating the carpets."

And then the cat had a fit.—Pittsburg Post.

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The Desirability of the South
as the place to manufacture cotton goods is illustrated in the increase of 67% quoted by census department. We can offer attractive situations for those desiring to enter this field.
J. A. PRIDE
General Industrial Agent, Seaboard Air Line Railway
NORFOLK, VIRGINIA.

The Logical Location for Textile Mills
The three absolutely necessary commodities for operating successfully a textile mill are POWER, RAW MATERIAL and LABOR.
If your mill is located in a Southeastern State on one of the many CHEAP WATER POWERS which abound in that locality—where cotton is delivered at your factory doors by growers—where intelligent LABOR IS PLENTIFUL and living expenses low, you will realize larger dividends than would be possible with your factory located in any other part of the country.
If you contemplate establishing an industry, we would be pleased to give further and full information regarding location along the Southern Railway System.
M. V. RICHARDS
Land and Industrial Agent Southern Railway
Room J WASHINGTON, D. C.

The Yarn Market

Philadelphia, Pa.—Business in both divisions of the yarn market was generally reported poor last week. A great many dealers called April a good month, but manufacturers are pretty well covered for the next eight or ten weeks and this, with the slump in the cotton market, tended to restrict the operations in the yarn market to buying small lots for spot delivery.

While manufacturers are busy on lightweight goods, there has been a lull in the demand for goods, for both nearby and future delivery. This falling in the demand for the lightweights is not felt by the mills, as many of them are not in a position to take further orders for lightweights.

Manufacturers of carded yarn goods are not inclined to operate as freely as they were three or four weeks ago. Prices are too high and a number of them said to buy now in anticipation of needs, simply means putting spinners in a position to demand higher prices when the needs of the season are fully known.'

Weavers are generally buying yarn in small quantities for prompt deliveries. The inquiries that were received during the week for future deliveries were coupled with prices that spinners would not accept.

Southern Single Skeins.

8s	17 —
10s	17 1-2—
12s	18 —
14s	18 —18 1-2
16s	19 —
20s	20 —
26s	21 —21 1-2
30s	24 1-2—25

Southern Two-Ply Skeins:

8s	17 1-2—18
10s	18 1-2—
12s	18 1-2—19
14s	19 —19 1-2
16s	19 —20
20s	21 1-2—
24s	22 1-2—23
26s	23 —23 1-2
30s	25 1-2—26
40s	33 —33 1-2
50s	39 —40
60s	45 —47

Carpet and Upholstery Yarn in Skeins:

8-3 hard twist	18 —
8-4 slack	18 1-2—19
9-4 slack	19 —19 1-2

Southern Single Warps:

8s	17 1-2—18
10s	18 1-2—
12s	18 1-2—19
14s	19 —
16s	19 1-2—
20s	20 1-2—
24s	21 1-2—
26s	22 —22 1-2
30s	25 1-2—
40s	31 —32

Southern Two-Ply Warps:

8s	18 —18 1-2
10s	18 1-2—19
12s	19 —
14s	19 1-2—20
16s	20 1-2—21
20s	22 —22 1-2
24s	23 —23 1-2
26s	23 1-2—24
30s	26 —26 1-2
36s	30 —31
40s	33 —34
50s	40 —41

Southern Frame Spun Yarn on Cones

8s	18 —
10s	18 1-2—19
12s	19 —19 1-2
14s	19 1-2—19 3-4
16s	20 —20 1-2
18s	20 1-2—21
12s	21 —
14s	21 —21 1-2
16s	21 1-2—22
18s	22 —22 1-2
20s	21 1-2—
22s	22 —
24s	22 1-2—23

Single Skeins Carded Peeler:

20s	25 —
24s	24 —24 1-2
26s	25 —
30s	26 —26 1-2
40s	31 1-2—
50s	38 —

Two-Ply Carded Peeler in Skeins:

20s	25 —
30s	28 —28 1-2
30s-1t's	34 —
36s	30 1-2—31
40s	32 1-2—33
50s	39 —40
60s	46 —47

Single Combed Peeler Skeins:

20s	26 1-2—27
24s	27 1-2—28
30s	30 —31
40s	37 —38
50s	45 —46
60s	52 —53

Two-Ply Combed Peeler Skeins:

20s	28 —28 1-2
24s	29 —29 1-2
30s	31 —32
40s	41 —42
50s	47 —49
60s	55 —58
70s	62 —65
80s	73 —77

A. M. Law & Co.

Spartanburg, S. C.

BROKERS

Dealers in Mill Stocks and other Southern Securities

South Carolina and Georgia Mill Stocks.

	Bid	Asked
Abbeville Cot Mills, S. C.	...	75
Aiken Mfg. Co. S. C.	...	72½
Amer. Spin. Co., S. C.	...	162
Anderson Cot Mill, S. C. p	90	...
Aragon Mills, S. C.	...	65
Arcadia Mills, S. C.	...	90
Arkwright Mills, S. C.	...	100
Augusta Factory, Ga.	45	...
Belton Cotton Mills, S. C.	100	110
Brandon Mills, S. C.	...	93
Brogon Mills, S. C.	...	61
Calhoun Mills, S. C.	51	61
Capital Cot Mills, S. C.	...	85
Chiquola Mills, S. C.	...	167
Clifton Mfg. Co., S. C.	75	...
Clifton Mfg. Co., S. C., pfd	...	100
Clinton Cot Mills, S. C.	...	125
Courtenay Mfg. Co., S. C.	...	90
Clumbus Mfg. Co., Ga.	92½	100
Cox Mfg. Co., S. C.	...	70
D. E. Converse Co., S. C.	...	75
Dallas Mfg. Co., Ala.	...	100
Darlington Mfg. Co., S. C.	...	75
Drayton Mills, S. C.	...	90
Eagle & Phenix Mills, Ga.	108	...
Easley Cot Mills, S. C.	160	165
Enoree Mfg. Co., S. C.	25	...
Enoree Mfg. Co., S. C. pfd	...	100
Enterprise Mfg. Co., Ga.	...	70
Exposition Cot Mills, Ga.	...	210
Fairfield Cot Mills, S. S.	...	70
Gaffney Mfg. Co., S. C.	...	60
Gainesville Cot Mills, Ga., common	...	62½
Glenwood Mills, S. C.	...	141
Glenn-Lowry Mfg. Co., S. C.	101	...
Glenn-Lowry Mfg. Co., S. C., pfd.	...	95
Gluck Mills, S. C.	...	91
Granby Cot. Mills, S. C.	...	...
Granby C Mills, S. C., pfd	135	145
Granite C Mills, S. C.	...	...
Greenwood C Mills, S. C.	57	60
Grendel Mills, S. C.	91	100
Hamrick Mills, S. C.	...	102
Hartsville C Hills, S. C.	...	170
Inman Mills, S. C.	...	105
Inman Mills, S. C., pfd.	...	100
Jackson Mills, S. C.	...	95
King, John P. Mfg. Co., Ga	80	85
Lancaster Cot Mills, S. C.	130	...
Lancaster C. M., S. C., pfd	98	...
Langley Mfg. Co., S. C.	65	...
Laurens Cot Mills, S. C.	...	120
Limestone Cot Mills, S. C.	...	155
Lockhart Mills, S. C.	...	70
Marlboro Mills, S. C.	60	75
Mills Mfg. Co., S. C.	90	93
Mollohon Mfg. Co., S. C.	...	105
Monarch Cot Mills, S. C.	110	...
Monaghan Mills, S. C.	...	...
Newberry Cot Mills, S. C.	125	135
Ninety-Six Mills, S. C.	135	140
Norris Cot Mills, S. C.	...	115
Olympia Mills, S. C. pfd	...	...
Orangeburg Mfg. Co., S. C., pfd.	...	90
Orr Cottton Mills, S. C.	91	...
Ottaray Mills, S. C.	...	100
Oconee, S. C., com.	...	100
Oconee, S. C., pfd.	...	100 & int
Pacolet Mfg. Co., S. C.	...	90
Pacolet Mfg. Co., pfd.	...	100&int
Parker Mill, guaranteed	...	102
Parker Mill, preferred	...	65
Parker Mill, common	...	...
Pelzer Mfg. Co., S. C.	138	140
Pickens Cot. Mill, S. C.	94	...
Piedmont Mfg. Co., S. C.	144	160
Poe, F. W. Mfg. Co., S.C.	100	115
Richland Cot Mills, S. C. p	...	...
Riverside Mills, S. C.	...	25
Sibley Mfg. Co., Ga.	60	64
Spartan Mills, S. C.	110	...
Toxaway Mills, S. C.	...	72
Tucapau Mills, S. C.	260	...
Union-Buffalo Mills, S. C., 1st preferred	50	60
Union-Buffalo Mills, S. C., 2nd preferred	...	10
Victor Mfg. Co., S. C.	...	...
Ware Shoals Mfg. Co., S. C.	...	80
Warren Mfg. Co., S. C.	80	...
Warren Mfg. Co., S. C., p	100	...
Watts Mills, S. C.	...	85
Whitney Mfg. Co., S. C.	...	115
Williamston Mills, S. C.	...	115
Woodruff Cot Mills, S. C.	...	100

F. C. Abbott & Co.

Charlotte, N. C.

BROKERS

Southern Mill Stocks, Bank Stocks, N. C. State Bonds, N. C. Railroad Stock and Other High Grade Securities

North Carolina Mill Stocks.

	Bid.	Asked
Arlington	....	137
Atherton	....	....
Avon	....	100
Bloomfield	....	110
Brookside	....	112
Brown Mfg. Co., com	100	115
Cabarrus	131	...
Cannon	120	...
Chadwick-Hoskins	....	95
Chadwick-Hoskins, pfd.	....	100
Clara	....	110
Cliffside	....	200
Cora	....	135
Dresden	....	136
Dilling	....	...
Efird	100	125
Elmira, pfd.	....	100
Erwin Com	....	120
Erwin, pfd	101	102
Florence	....	126
Flint	140	..
Gaston	....	90
Gibson	....	80
Gray Mfg. Co.	....	121
Highland Park	150	200
Highland Park, pfd	100	...
Henrietta	....	170
Imperial	101	106
Kesler	115	...
Linden	....	...
Loray, pfd	....	91
Lowell	....	181
Lumberton	....	251
Mooresville	123	....
Modena	....	...
Nokomis, N. C.	....	200
Ozark	92	110
Patterson	120	126
Raleigh	100	104
Roanoke Mills	140	161
Salisbury	136	...
Statesville Cot. Mills	....	...
Trenton, N. C.	....	...
Tuscarora	....	90
Washington, pfd.	95	100
Washington	20	30
Wiscassett	100	115
Woodlawn	....	100

Personal Items

Lacey Williams, of Raleigh, N. C. has accepted position at the Locke Mills, Concord, N. C.

D. P. McClurd, manager of the Gaston Mfg. Co., Charryville, N. C. has been elected mayor of his town

J. W. Outs has resigned as superintendent of the Wilson (N. C.) Cotton Mills.

Jack Carter of Ellawhite, Ala., is now section hand in spinning at the Dwight Mfg. Co., Alabama City, Ala

L. F. Groves, of Gastonia, N. C. is on a ten days trip to New York and Boston.

Frank James, of the Payne Mill Macon, Ga., has accepted the position of overseer of spinning at the Trio Mfg. Co., Forsyth, Ga.

W. H. Still, overseer of carding at the Chadwick-Hoskins Mill, Pineville, N. C., has also taken charge of the spinning.

Marshall Dilling, superintendent of the Avon Mills, Gastonia, N. C., is at Raleigh, N. C., this week attending the Grand Lodge of North Carolina I. O. O. F.

E. A. Holt, formerly superintendent of the Liberty Cotton Mills Clayton, N. C., has accepted the position of superintendent of the Wilson (N. C.) Cotton Mills.

F. E. Blair was, by error, mentioned last week as overseer of spinning at the Columbus (Ga.) Mfg. Co. He resigned that position some time ago and it is now held by F. C Henderson.

Death of A. A. Shuford.

Hickory, N. C.—Hon. Abe A. Shuford died suddenly at his home in this city last Friday. He was one of the most prominent and influential citizens of the town. Mr. Shuford was largely interested in a number of cotton mills.

Death of William G. Childs.

Columbia, S. C.—William Guion Childs, one of the most prominent business men of this city, died suddenly last Thursday from apoplexy

W. G. Childs was a pioneer in the cotton industry in this state, being a director in several of the first cotton mills erected in this section C

Woman Accused of Killing Baby.

Mrs. Julia Taylor, a resident of the Drayton, (S. C.) Cotton Mills. was arrested last week, charged with the murder of her infant child Her aged mother was arrested as an accessory. Their arrest followed the finding in an old well, the body of a week old boy, of whom Mrs. Taylor was declared by the coroner's jury to be the mother. She denies the charge.

Superintendent of Atco Mill Dead

J. W. Brown, superintendent of the Atco (Ga.) Cotton Mills, died suddenly at Cartersville, Ga., last week. His death was attributed to heart failure. Mr. Brown attended a K. of P. meeting at Cartersville. where he had made an address and was preparing to leave when he was stricken.

Mr. Brown was a native of Patterson, N. J., and came to Georgia when a young man. He entered the mill business and became one of its most successful men. His death is a sad blow to the community in which he lived as he was one of its most highly respected citizens.

Was Impolite to Officers.

Greensboro, N. C.—Some excitement was created in Pomona Cotton Mill village by a white man named Kirby Moffitt last week. It seems that Moffitt, who it is alleged was drinking, became angered at a 12-year-old boy, chased the child around for a time and threatened to kill him. A citizen of the town was deputized to help arrest Moffitt and after the man had been taken into custody he requested that he be allowed to go home and change clothes before going to jail. The request wsa granted, the man entered the house and has not been seen or heard of since. The town was sharply aroused over the incident for a time.

A. Klipstein & Co. Move.

A. Klipstein & Company, the well-known aniline color and dyestuff house, formerly at 129 Pearl street New York, moved on May 1 to the new and modern loft building 647-654 Greenwich street, corner of Barrow street, Manhattan.

This building is one of the most up-to-date loft buildings in New York city, being fire-proof and of reinforced concrete construction centrally located within one minute walk of the Crosstown trolleys, Hoboken ferry and the Christopher street station of the Hudson Tunnels and Ninth Aenue Elevated and within five minutes walk to several of the Trans-Atlantic steamship lines.

The building is eight stories and basement and contains about 81,000 square feet of available floor space, with three elevators and automatic sprinkler system; its construction and equipment being in strict accord with the requirements of the Building Department and insurance companies of New York City. The top floor will be occupied by the executive offices of the company.

The Turn on Mother.

"Mother, turn the hose on me," said little Willie as his mamma was dressing him in the morning.

"Why, Willie, what in the world do you mean?" cried his alarmed and loving parent.

"Why, you've put my stockings on the wrong side out."—Exchange.

How He Managed It.

"I was in an awkward predicament yesterday morning," said a husband to another.

"How was that?"

"Why, I came home late, and my wife heard me and said, 'John, what time is it?' and I said, 'Only twelve my dear,' and just then that cuckoo clock of ours sang out three times."

"What did you do?"

"Why, I just had to stand there and cuckoo nine times more."—Ex

GLORIA WARP SIZE

A PREPARATION adapted to prints and medium counts. It is also especially recommended for Short Chain Sizing. The quality of tallow used in the manufacture of this product avoids the necessity of any addition of tallow. It is difficult to find a Size that will give equal satisfaction to both the weaver and beamer. Users of GLORIA WARP SIZE will overcome complaints from either department, and will find it gives general satisfaction throughout their mill. Its softening qualities are unexcelled.

ARABOL MANUFACTURING CO.
100 William Street, New York
CAMERON MacRAE Southern Sales Agent CHARLOTTE, N. C.

MARCUS A. DARY Agent and Treasurer
FRED H. DARY Superintendent
DARY RING TRAVELER COMPANY
Manufactu.ers of High Grade
SPINNING AND TWISTING TRAVELERS
TAUNTON, - - - - - - - MASSACHUSETTS

Scientific Training.

(Continued from Page 10.)

of the science which underlies his particular branch of industry has a much greater chance of achieving success than the man who is merely an imitator of his predecessors, and who is mainly dependent upon rule-of-thumb methods of working. In this commercial age however, there is an instinctive tendency to estimate the value of scientifc training in pounds, shillings, and pence, and in this connection the minds of many education enthusiasts have long been exercised to account for the apparently small pecuniary return which the scientifically trained man can command To some extent this condition of affairs is due to our educational education. Something more than a general scientific education is necessary if success is to be achieved in the modern industrial struggle: and if a more selective educational policy could be established better results would ensue. The really promising students should receive more individual tuition than is at present possible with the rigid rules of our technological colleges, which often lead to a deal of the student's time being wasted in obtaining knowledge which he could acquire with far more facility in the works. There is a wide range of imperative subjects, and hence the need for eliminating any work which is not absolutely essential. As an example we may take the subjects which, it is said, every industrial chemist should include in his course: French and German; mathematics, at least up to the elements of the differential and integral calculi; a complete course of laboratory work in inorganic, analytical, physical and organic chemistry; physics; a knowledge of fuel and fuel economy, steam-raising plant, steam engines, gas producers, gas and oil engines, electrical generators and motors; water purification; metallurgy; furnace construction; the general principles of machinery and engineering drawing; business methods and costs of all kinds; economics; a knowledge in particular of the chemical markets; and a knowledge of all the important printed research on his subject. It is obvious that it is not an easy matter to obtain a tolerably satisfactory knowledge of all these subjects in the four or five years usually available; hence everything possible should be done to eliminate the merely manual processes to which so many of our technical schools attach so great a measure of importance.—Textile Manufacfacturer of Manchester, Eng.

Elmira Cotton Mill.

Burlington, N. C.

J. G. King	Superintendent
J. C. Coleman	Carder
I. B. Meacham	Spinner
D. R. Purcell	Weaver
Chas. Donald	Cloth Room
J. B. Foster	Beamer
O. P. Shelton	Engineer
Joe Murray	Dyer

Want Department

Want Advertisements.

If you are needing men for any position or have second hand machinery, etc., to sell, the want columns of the **Southern Textile Bulletin** afford a good medium for advertising the fact.

Advertisements placed with us reach all the mills.

Employment Bureau.

The Employment Bureau is a feature of the Southern Textile Bulletin and we have better facilities for placing men in Southern mills than any other journal.

The cost of joining our employment bureau is only $1.00 and there is no other cost unless a position is secured, in which case a reasonable fee is charged.

We do not guarantee to place every man who joins our employment bureau, but we do give them the best service of any employment bureau.

WANTED

WANTED AT ONCE a competent American Warp-Drawing Machine operator on white work. Address No. 1015.

BEAMERS WANTED.

WANTED AT ONCE, FOR NIGHT WORK, 10 SHORT CHAIN BEAMERS. PAY $2.40 PER NIGHT. NONE BUT FIRST CLASS BEAMERS NEED APPLY. ADDRESS,

A. C. WEST,
OVERSEER BEAMING,
LOCKE MILLS,
CONCORD, N. C.

Operatives Wanted.

We will need card and picker room help for night work beginning about May 11th. Can furnish day work for spinners, spoolers and winders in the families of men who take the night work.

Twine Mill Co.,
T. J. McNeely, Supt.,
Roanoke, Va.

Read This:

We are starting up our weaving, and can use a number of first class DRAWING-IN HANDS at GOOD WAGES. Can also use several more families of good SPINNERS. Apply to

R. P. Sweeny, Supt.,
Wylie Mills, Chester, S. C.

WANT position as overseer of carding. Five years as overseer. Experienced on combers and fine yarns. Age 32. Good references. No. 121.

Weavers and Fixers Wanted.

WANTED—At once, a few good Draper and Crompton Loom Weavers on Chambrays and Ginghams. Good weavers earn with us from $8.00 to $12.00 per week. Can also use for our new loom addition some first class Draper and Stafford Loom Fixers. Write or apply in person at once to

DAN RIVER COTTON MILLS,
Danville, Va

WANT position as overseer of spinning. 10 years experience as overseer. Age 30. Married. Good references. Address 121.

WANT position as overseer of weaving. 10 years experience as overseer and now employed but desire to change for good reasons. Fine references. Address No. 122.

WANT position as chief engineer or master mechanic. Have had long experience and can give satisfactory references. Address No 124.

WANT position as overseer of carding. 17 years in card room. [illegible] years experience as overseer. Can furnish good references. Address No. 123.

WANT position as superintendent or overseer of large weave room Have had long pracctical experience and can furnish satisfactory reference. Address No. 126.

WANT position as engineer and machinist. Now employed but could change on short notice. Can furnish good references. Address No. 127.

WANT position as overseer of carding; or carding and spinning in small mill. Age 34. Married Long experience. Can furnish good references. Address No No. 128.

WANT position as superintendent of yarn mill. Have had six years' experience hosiery yarns Can furnish good references. Age 30. Married. Address No. 129.

WANT position as overseer of carding or spinning or overseer of carding and spinning. Have had long experience and can furnish the best of references. Address No. 130.

WANT position as overseer of weaving in small room, or second hand in large room. Experienced on counts from 18s to 50s. Experienced on plain and Draper looms. Good manager of help, sober and reliable. Good references. Address No. 131.

WANT position as overseer weaving in large mill on white work. 22 years' experience on Stafford Automatic Looms, also expert on Draper Looms. Can get quality and quantity. Will consider nothing less than $5 per day. Address No. 132.

WANT position as superintendent of mill making cloth, or would take overseer of spinning in large erences. Now employed as supmill. Long experience, good referintendent but wish to change. Address No. 133.

WANT position as carder or spinner. Can take position in short notice and can furnish the best of references. Address No. 134.

WANT position as superintendent of small yarn mill, or overseer of carding in large mill. Familiar with white and colored goods. 23 years experience in mill business Now employed as superintendent. Would not consider less than $3.50 per day. Address No. 135.

WANT position as superintendent of yarn mill. Experienced on white and colored yarns from 8's to 40's. Have 23 years experience and can give good references. Address No. 135.

WANT position as overseer of weaving. Experienced on both colored and white work. Age 34. Married. Good references. Address No. 136.

WANT position as overseer of carding at not less than $3.00. Now employed but wish healthier location. Have had long experience and can furnish best of references. Address No. 137.

WANT position as superintendent or overseer of carding and spinning at not less than $4.00. Now employed in large mill but wish to change. Good references. Address No. 138.

WANT position as carder and spinner or spinner in large mill. Age 34. Married. Good experience and references. Address No 139.

WANT position as superintendent. Long experience and now employed but wish larger mill. Can furnish best of references. Address No. 140 .

WANT position as superintendent or carder and spinner. Now employed and can furnish good references. Address No. 141.

WANTED position as overseer spinning by practical as well as a technical man. Married. Am strictly temperate. Can come on short notice. Will consider nothing less than $2.50 per day. Address No. 142.

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Patent Lawyers
Suite 34 N. U. Bldg. Washington, D.C.

WANT position as overseer of spinning, Experience on all numbers but prefer fine work. Am from the South but for several years have been with fine yarn mills at New Bedford and other New England towns. Good references. Address No. 143.

WANT position as overseer of cloth room. 20 years experience. 10 years at present place. Strictly sober. Good references. Address No. 144.

WANT position as superintendent or overseer of large card room. Have had long experience and am now employed. Address No. 145.

WANT position as superintendent. 27 years mill experience. 8 years on present position. Experienced on both white and colored goods. Satisfactory references. Address No. 146.

WANT position as overseer of weaving. Experience on both plain and fancy goods but would prefer box loom job. Have filled former positions satisfactorily and can get production at low cost. Address No. 147.

WANT position as superintendent in North Carolina, South Carolina or Northern Georgia. Long experience and can furnish best of references as to ability and character. Address No. 148.

WANT position as overseer of weaving. Married. Age 40. Have run some of the largest rooms in S. C. and Ga. Can give good references. Address No. 152.

WANT position as superintendent. Have had long practical experience and am now assistant superintendent of a large mill and giving satisfaction. Can give as reference my present employers. Address No. 149.

WANT position as superintendent or carder in a large mill. 15 years experience as carder. 4 years as superintendent. Experienced on both plain and fancies. Best of references. Address No. 150.

WANT position as overseer of weaving in a good mill. Have had eleven years experience on plain and check work. Address No. 151.

(Continued on Page 18)

Tariff Board Report

(Continued on Page 4

few cases it is nearly doubled. Consequently the difference in conversion cost would appear much greater in a comparison drawn between mills of lowest cost in England and mills of highest cost in the United States.

In this connection care should be taken not to confuse conversion cost with the value of the finished yarn. In saying that the cost of manufacturing yarn in an English mill is 72 per cent of the cost in an American mill, it is not meant that the total cost of English yarn including the value of the cotton in it, is 72 per cent of the total cost of the American yarn. As a matter of fact, the difference in conversion cost between the two countries varies from 33.8 per cent to 11.9 per cent of the total cost of production in England, including raw material.

It should also be noted that these relative cost do not include yarns of the highest counts or other yarns used largely for special purposes, since the board was not able to secure sufficiently detailed figures on the higher counts abroad. They do include, however, the great mass commonly manufactured in the United States. It is entirely possible that a comparison of costs on these special counts or qualities would show a different ratio between the two countries than is here presented

Duties on Yarn.

In comparing duties with costs of production the report presents two separate sets of figures—one refering to the ordinary warp and filling yarns manufactured by weaving mills for their own use, and the other refering to costs on certain grades of yarn produced by mills which do only a spinning business and sell the yarn as their finished product. These latter figures include a few warp and filling yarns, but cover primarily knitting yarns or yarns used for specialties.

A comparison of the cost of production in the two countries shows that in case of the ordinary warp and filling yarns the present duty is regularly in excess of the difference in cost of conversion. If the relative costs only of the two mills having the lowest cost of production are considered, it appears that the present duty on the types of warp and filling described, ranging from 30's to 80's, is in all cases more than twice the difference in the total conversion cost, and in some cases four or five times the difference. The labor cost on these yarns is from 50 per cent to 60 per cent of the total conversion cost.

These figures, as stated, are based on the difference in conversion cost betwen the two mills of lowest cost Making, however, a similar comparison between the lowest cost in England and the highest cost in the United States, in practically all cases the duty is gerater than the difference in the conversion cost. For example, taking a 40's warp, the lowest American conversion cost is 8.4 cents, the highest 11.25; the lowest English cost is 5.8 cents, and the duty is 10 cents per pound.

(To Be Continued)

Shuttle

(Continued from Page 6)

compresses the spring 26 while the elastic strip 16, being brought up against the transverse pin 24, is thrown out of engagement with the head 5, as shown in Fig. 3, and the spindle 4 may then be readily removed by drawing it off of the rod 19. In like manner the spindle may be readily secured in position by swinging it downward after it has been engaged by the rod 19 until the flange 18 is pressed into engagement with the angular groove 6 of the head 5, the spring 26 aiding in holding the parts in the locked position as shown in Fig. 2.

The Inventor Claims:

1. A shuttle having a pivoted member with a number of recesses and a longitudinal passage way, a spring catch mounted on said pivoted member, a stop on said shuttle against which said catch is adapted to bear, a yielding member having transverse oval projections, one of which is adopted to engage said pivoted member, a rod provided with notches, one of which is adapted to engage said yielding member and the other said stop on the shuttle, and a spindle detachably mounted on said rod and having a head with an annular groove detachably engaging said catch.

2. A shuttle having an opening in its bottom with a vertical projection at one end thereof, a member pivotally mounted in the shuttle above said opening and having a longitudinal passageway open at its bottom, and a groove in its forward part, a spring strip extending beneath said pivoted member and secured at one end to the forward end of said pivoted member and having a vertical flange at its other end, said strip projecting above said vertical projection in the bottom of the shuttle, a stop pin extending across the shuttle between said spring strip and said pivoted member, a rod having a head with notches on its upper and lower sides, the lower one of which engages said transverse pin, a coil spring located in the shuttle, a member having two transverse oval projections, and a shank projecting into said coil spring, one of said oval projections being adapted to engage said pivoted member and the other said rod, and a detachable spindle having a head with an annular groove adapted to detachably engage the flange of said spring strip.

WANT position as overseer of weaving. 15 years' experience on both white and colored goods. Can furnish references from first class mills. Address No. 154.

WANT position as superintendent of either yarn or weaving mill of 5.000 to 15.000 spindles. At present employed in fine colored goods mill. Age 32. Married. 20 years' experience. Good references. Address No. 155.

WANT position as overseer of carding or spinning. Have had long practical experience and am now holdng position in first-class mill but prefer to change. Address No 156.

RICHARD A. BLYTHE
(INCORPORATED)
Cotton Yarns Mercerized and Natural
ALL NUMBERS
505-506 Mariner and Merchant Building PHILADELPHIA, PA.

UP TO YOU TO BE UP-TO-DATE
In Bleaching, Dyeing, Finishing
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BOSSON & LANE
Works and Office ATLANTIC, MASS.

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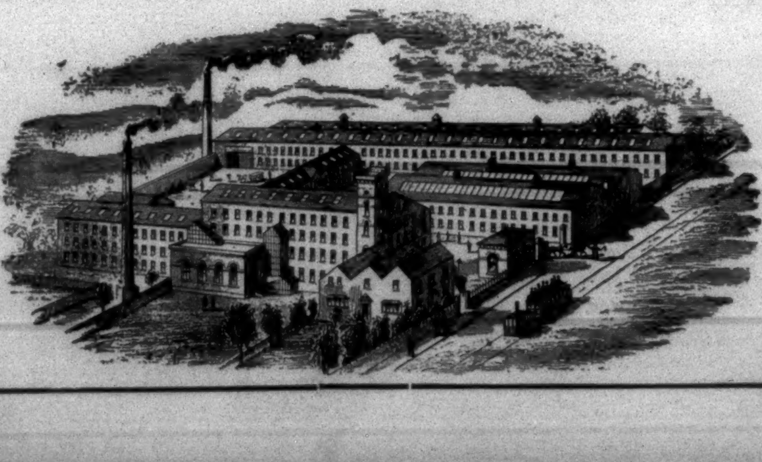

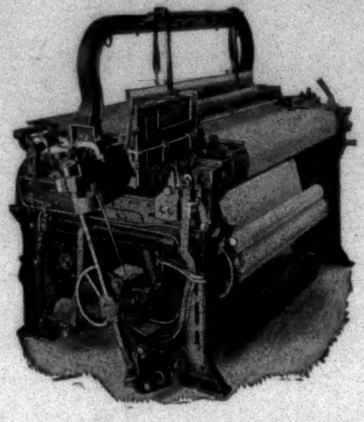

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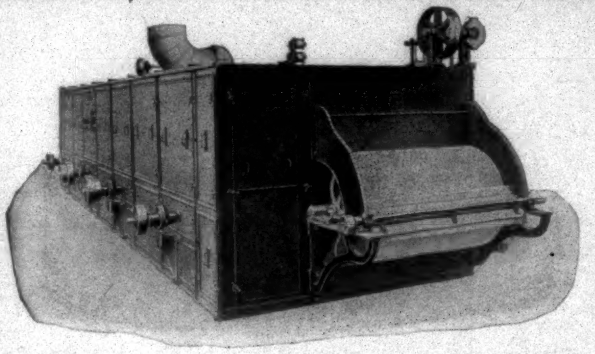

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